WEST Search History

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DATE: Wednesday, May 04, 2005

Hide?	Set Name	Query	Hit Count
		DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=OR	
☐	L6	hsp27 and ((gleave or rocchi or signaevsky or beraldi).in.)	2
☐	L5	hsp27 and siRNA	6
☐	L4	hsp27 same (antisense or anti-sense)	8
☐	L3	hsp27 and (antisense or anti-sense)	150
☐	L2	L1 same (antisense or anti-sense or siRNA)	9
☐	L1	hsp27	348

END OF SEARCH HISTORY

Set	Items	Description
S1	3152	HSP27
S2	97	S1 AND (ANTISENSE OR ANTI-SENSE OR SIRNA OR RNAI)
S3	82	S1 (S) (ANTISENSE OR ANTI-SENSE OR SIRNA OR RNAI)
S4	6	S3 AND PHOSPHOROTHIOATE
S5	3	RD (unique items)
S6	1	S5 NOT PY>=2003
S7	2	S3 AND BACKBONE
S8	2	RD (unique items)
S9	0	S8 NOT PY>=2003
S10	3	S3 AND PHARMACEUTICAL
S11	3	RD (unique items)
S12	0	S11 NOT PY>=2003
S13	56	S3 NOT PY>=2003
S14	32	RD (unique items)

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T S14/FULL/ALL

14/9/1 (Item 1 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0014346456 BIOSIS NO.: 200300303945
HSP27 PLAYS A ROLE IN BOTH SURVIVAL AND NEURITE OUTGROWTH OF DRG NEURONS.
AUTHOR: Dodge M E (Reprint); Tucker B A (Reprint); Rahimtula M (Reprint); Mearow K M (Reprint)
AUTHOR ADDRESS: Basic Medical Sciences, Memorial University of Newfoundland, St. John's, NF, Canada**Canada
JOURNAL: Society for Neuroscience Abstract Viewer and Itinerary Planner 2002 pAbstract No. 426.7 2002 2002
MEDIUM: cd-rom
CONFERENCE/MEETING: 32nd Annual Meeting of the Society for Neuroscience Orlando, Florida, USA November 02-07, 2002; 20021102
SPONSOR: Society for Neuroscience
DOCUMENT TYPE: Meeting; Meeting Poster; Meeting Abstract
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Heat shock protein 27 (Hsp27) has been previously shown to protect neurons from cell death induced by stresses such as heat shock or trophic factor withdrawal. We have been investigating the potential mechanisms underlying this protective effect. Previously in PC12 cells we have shown that the overexpression of Hsp27 was associated with a reduction in NGF-withdrawal induced apoptosis, possibly by prolonging Akt activation.) Here we have examined the contributions of Hsp27 to the survival and neurite outgrowth of cultured rat DRG neurons. We hypothesized that Hsp27 may play a role in the NGF independence of adult DRG neurons, and because of its interaction with cytoskeletal elements may also be key for neuritic growth. We have used antisense oligonucleotides against Hsp27 to downregulate expression, as well as cDNA transfection to upregulate expression and then examined the effects on both survival and neuritogenesis using Western blotting, immunocytochemistry, TUNEL and neurite tracing techniques.) Our results show most cultured adult DRG neurons constitutively express Hsp27, which is distributed throughout the cell bodies and neuritic networks. Treatment with antisense oligonucleotides resulted in decreased expression of Hsp27 as expected. Furthermore, there was decreased neuronal survival in antisense treated neurons. Interestingly, there was also an attenuation of neurite outgrowth in neurons that were shown to have taken up the antisense oligo nucleotide. Our results suggest a key role for Hsp27 in DRG neurons in promoting both cell survival and either in the initiation or maintenance of neurite growth.

DESCRIPTORS:
MAJOR CONCEPTS: Nervous System--Neural Coordination
BIOSYSTEMATIC NAMES: Muridae--Rodentia, Mammalia, Vertebrata, Chordata, Animalia
ORGANISMS: rat (Muridae)
ORGANISMS: PARTS ETC: neurite--nervous system, survival, network, outgrowth, cell body; DRG neuron {dorsal root ganglion neuron}--nervous system; cytoskeleton
COMMON TAXONOMIC TERMS: Animals; Chordates; Mammals; Nonhuman Vertebrates ; Nonhuman Mammals; Rodents; Vertebrates
CHEMICALS & BIOCHEMICALS: heat shock protein 27 {Hsp27}; antisense oligonucleotide; cDNA {complementary DNA}
METHODS & EQUIPMENT: Western blotting--genetic techniques, laboratory

techniques; immunocytochemistry--immunologic techniques, laboratory techniques; TUNEL--genetic techniques, laboratory techniques; neurite tracing technique--laboratory techniques
MISCELLANEOUS TERMS: neuritogenesis; Meeting Poster; Meeting Abstract
CONCEPT CODES:
00520 General biology - Symposia, transactions and proceedings
02506 Cytology - Animal
10062 Biochemistry studies - Nucleic acids, purines and pyrimidines
10064 Biochemistry studies - Proteins, peptides and amino acids
20504 Nervous system - Physiology and biochemistry
BIOSYSTEMATIC CODES:
86375 Muridae

14/9/2 (Item 2 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0014074696 BIOSIS NO.: 200300033415
Decreased survival of mosquito cells after stable transfection with a Drosophila ecdysteroid response element: Possible involvement of a 40 kDa DNA binding protein.
AUTHOR: Jayachandran Gitanjali (Reprint); Fallon Ann M (Reprint)
AUTHOR ADDRESS: Department of Entomology, University of Minnesota, 1980 Folwell Ave., Saint Paul, MN, 55108, USA**USA
AUTHOR E-MAIL ADDRESS: jayac001@umn.edu
JOURNAL: Journal of Insect Science (Tucson) 2 (21 Cited November 12, 2002): p1-9 November 5, 2002 2002
MEDIUM: online
ISSN: 1536-2442 _(ISSN online)
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Homologous transfection systems provide a useful tool for characterizing promoters and other regulatory elements from cloned genes. We have used cultured Aedes albopictus C7-10 mosquito cells to evaluate expression of 20-hydroxyecdysone-inducible genes. Although this cell line has previously been shown to synthesize components of the ecdysteroid receptor and ecdysone-inducible proteins, the well-characterized ecdysteroid response element (EcRE) from the Drosophila hsp27 promoter failed to confer a substantial 20-hydroxyecdysone mediated induction in transfected mosquito cells. Recovery of stably transformed clones was also reduced in a DNA dependent manner when the EcREs were in the sense orientation, relative to control plasmids lacking the EcREs or containing an antisense construct. Finally, when tandem EcREs were placed within the hsp70 promoter, CAT activity was detected only after prolonged enzyme incubation, suggesting that the DNA interfered with cellular metabolism. In these constructs, we noted that the promoter DNA contained several potential binding sites for the activator protein-1 (AP-1) transcription factor, one of which lay between the tandem EcREs. On southwestern blots, a 40 kDa nuclear protein from C7-10 cells bound to DNA containing AP-1 sites. A DNA affinity column was used to partially purify the 40 kDa protein, and western analysis showed that the mosquito protein cross-reacted with a heterologous antibody to JUN. Likewise, mRNA from C7-10 cells cross-hybridized with the jun cDNA from Drosophila. These results suggest that like estrogen, 20-hydroxyecdysone interfaces with AP-1 as a co-activator protein that modulates the overall hormone response.

REGISTRY NUMBERS: 5289-74-7: 20-hydroxyecdysone
DESCRIPTORS:
MAJOR CONCEPTS: Cell Biology; Molecular Genetics--Biochemistry and Molecular Biophysics
BIOSYSTEMATIC NAMES: Diptera--Insecta, Arthropoda, Invertebrata, Animalia
ORGANISMS: Drosophila (Diptera); Aedes albopictus (Diptera); C7-10 cell line (Diptera)
COMMON TAXONOMIC TERMS: Animals; Arthropods; Insects; Invertebrates
CHEMICALS & BIOCHEMICALS: DNA; DNA binding proteins; ecdysteroid response element {EcRE}; 20-hydroxyecdysone {20E}; estrogen; cDNA; mRNA ; activation protein-1 transcription factor {AP-1 transcription factor} ; ecdysteroid receptors; plasmids
GENE NAME: Drosophila hsp27 gene (Diptera); Drosophila hsp70 gene (Diptera)--promoter
METHODS & EQUIPMENT: transfection--genetic techniques, laboratory techniques; western analysis--genetic techniques, laboratory techniques; southwestern blot--genetic techniques, laboratory techniques
MISCELLANEOUS TERMS: cellular metabolism; cell survival
CONCEPT CODES:
02502 Cytology - General
02506 Cytology - Animal
03502 Genetics - General
03506 Genetics - Animal
10062 Biochemistry studies - Nucleic acids, purines and pyrimidines
10064 Biochemistry studies - Proteins, peptides and amino acids
64076 Invertebrata: comparative, experimental morphology, physiology and pathology - Insecta: physiology
BIOSYSTEMATIC CODES:
75314 Diptera

14/9/3 (Item 3 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0013791838 BIOSIS NO.: 200200385349
Cytosolic heat shock protein 60, apoptosis, and myocardial injury
AUTHOR: Kirchhoff S R; Gupta S; Knowlton A A (Reprint)
AUTHOR ADDRESS: Cardiovascular Medicine, University of California, Davis, One Shields Ave, TB172, Davis, CA, 95616, USA**USA
JOURNAL: Circulation 105 (24): p2899-2904 June 18, 2002 2002
MEDIUM: print
ISSN: 0009-7322
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Background-Heat shock proteins (HSPs) are well known for their ability to "protect" the structure and function of native macromolecules, particularly as they traffic across membranes. Considering the role of key mitochondrial proteins in apoptosis and the known antiapoptotic effects of HSP27 and HSP72, we postulated that HSP60, primarily a mitochondrial protein, also exerts an antiapoptotic effect. Methods and Results-To test this hypothesis, we used an antisense phosphorothioate oligonucleotide to effect a 50% reduction in the levels of HSP60 in cardiac myocytes, a cell type that has abundant mitochondria. The induced decrease in HSP60 precipitated apoptosis, as manifested by the release of cytochrome c, activation of caspase 3, and induction of DNA fragmentation. Antisense treatment was associated with an increase in bax

and a decrease in bcl-2 secondary to increased synthesis of bax and degradation of bcl-2. A control oligonucleotide had no effect on these measurements. We further demonstrated that cytosolic HSP60 forms a macromolecular complex with bax and bak in vitro suggesting that complex formation with HSP60 may block the ability of bax and bak to effect apoptosis in vivo. Lastly, we show that as cytosolic (nonmitochondrial) HSP60 decreases, a small unbound fraction of bax appears and that the amount of bax associated with the mitochondria and cell membranes increases. Conclusions-These results support a key antiapoptotic role for cytosolic HSP60. To our knowledge, this is the first report suggesting that interactions of HSP60 with bax and/or bak regulate apoptosis.

REGISTRY NUMBERS: 169592-56-7: caspase 3; 9007-43-6: cytochrome c
DESCRIPTORS:
MAJOR CONCEPTS: Cardiovascular System--Transport and Circulation; Cell Biology
ORGANISMS: PARTS ETC: myocytes--muscular system
DISEASES: myocardial injury--vascular disease
CHEMICALS & BIOCHEMICALS: DNA--fragmentation; bax--synthesis; bcl-2--degradation; caspase 3; cytochrome c; cytosolic heat shock protein 60 {cytosolic Hsp60}; heat shock protein 27 {HSP27}; heat shock protein 72 {HSP72}; macromolecules--function, structure
MISCELLANEOUS TERMS: apoptosis
CONCEPT CODES:
02502 Cytology - General
02506 Cytology - Animal
10062 Biochemistry studies - Nucleic acids, purines and pyrimidines
10064 Biochemistry studies - Proteins, peptides and amino acids
10802 Enzymes - General and comparative studies: coenzymes
14504 Cardiovascular system - Physiology and biochemistry
14508 Cardiovascular system - Blood vessel pathology
17504 Muscle - Physiology and biochemistry

14/9/4 (Item 4 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0013716700 BIOSIS NO.: 200200310211
Inhibition of p38 MAPK activation via induction of MKP-1: Atrial natriuretic peptide reduces TNF-alpha-induced actin polymerization and endothelial permeability
AUTHOR: Kiemer Alexandra K (Reprint); Weber Nina C; Fuerst Robert; Bildner Nicole; Kulhanek-Heinze Stefanie; Vollmar Angelika M
AUTHOR ADDRESS: Dept of Pharmacy, Center of Drug Research, Butenandtstr. 5-13, 81377, Munich, Germany**Germany
JOURNAL: Circulation Research 90 (8): p874-881 May 3, 2002 2002
MEDIUM: print
ISSN: 0009-7330
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: The atrial natriuretic peptide (ANP) is a cardiovascular hormone possessing antiinflammatory potential due to its inhibitory action on the production of inflammatory mediators, such as tumors necrosis factor-alpha (TNF-alpha). The aim of this study was to determine whether ANP is able to attenuate inflammatory effects of TNF-alpha on target cells. Human umbilical vein endothelial cells (HUVECs) were treated with TNF-alpha in the presence or absence of ANP. Changes in permeability,

cytoskeletal alterations, phosphorylation of p38 MAPK and HSP27, and expression of MKP-1 were determined by macromolecule permeability assay, fluorescence labeling, RT-PCR, and immunoblotting. Antisense studies were done by transfecting cells with MKP-1 antisense oligonucleotides. Activation of HUVECs with TNF-alpha lead to a significant increase of macromolecule permeability and formation of stress fibers. Treatment of cells with ANP (10-8 to 10-6 mol/L) significantly reduced the formation of stress fibers and elevated permeability. Both TNF-alpha-induced effects were shown to be mediated via the activation of p38 using SB203580, a specific inhibitor of p38. ANP significantly reduced the TNF-alpha-induced activation of p38 and attenuated the phosphorylation of HSP27, a central target downstream of p38. ANP showed no effect on p38 upstream kinases MKK3/6. However, a significant induction of the MAPK phosphatase MKP-1 mRNA and protein could be observed in ANP-treated cells. Antisense experiments proved a causal role for MKP-1 induction in the ANP-mediated inhibition of p38. These data show the inhibitory action of ANP on TNF-alpha-induced changes in endothelial cytoskeleton and macromolecule permeability involving an MKP-1-induced inactivation of p38 MAPK. These effects point to an antiinflammatory and antiatherogenic potential of this cardiovascular hormone.
REGISTRY NUMBERS: 75831-61-7Q: MKP-1; 129979-08-4Q: MKP-1; 144696-69-5Q: MKP-1; 85637-73-6: atrial natriuretic peptide
DESCRIPTORS:
MAJOR CONCEPTS: Cardiovascular System--Transport and Circulation; Cell Biology; Immune System--Chemical Coordination and Homeostasis
BIOSYSTEMATIC NAMES: Hominidae--Primates, Mammalia, Vertebrata, Chordata, Animalia
ORGANISMS: HUVEC cell line (Hominidae)--human umbilical vein endothelial cells
ORGANISMS: PARTS ETC: endothelium
COMMON TAXONOMIC TERMS: Animals; Chordates; Humans; Mammals; Primates; Vertebrates
DISEASES: inflammation--immune system disease
MESH TERMS: Inflammation (MeSH)
CHEMICALS & BIOCHEMICALS: MAPK {mitogen-activated protein kinase}; MKP-1; atrial natriuretic peptide {ANP}; hsp27 {heat shock protein 27}; mRNA {messenger RNA}; p38; tumor necrosis factor-alpha {TNF-alpha}
MISCELLANEOUS TERMS: signal transduction
CONCEPT CODES:
02502 Cytology - General
02508 Cytology - Human
10062 Biochemistry studies - Nucleic acids, purines and pyrimidines
10064 Biochemistry studies - Proteins, peptides and amino acids
10802 Enzymes - General and comparative studies: coenzymes
14504 Cardiovascular system - Physiology and biochemistry
17002 Endocrine - General
34502 Immunology - General and methods
34508 Immunology - Immunopathology, tissue immunology
BIOSYSTEMATIC CODES:
86215 Hominidae

14/9/5 (Item 5 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0013616534 BIOSIS NO.: 200200210045
Hsp27 regulates podocyte cytoskeletal changes in an in vitro model of podocyte process retraction
AUTHOR: Smoyer William E; Ransom Richard F (Reprint)

AUTHOR ADDRESS: Pediatric Nephrology, University of Michigan Medical Center, 1150 W. Medical Center Dr., 8220D MSRB III, Ann Arbor, MI, 48109, USA**USA
JOURNAL: FASEB Journal 16 (3): p315-326 March, 2002 2002
MEDIUM: print
ISSN: 0892-6638
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Nephrotic syndrome (NS) is characterized by structural changes in the actin-rich foot processes of glomerular podocytes. We previously identified high concentrations of the small heat shock protein hsp27 within podocytes as well as increased glomerular accumulation and phosphorylation of hsp27 in puromycin aminonucleoside (PAN) -induced experimental NS. Here we analyzed murine podocytes stably transfected with hsp27 sense, antisense, and vector control constructs using a newly developed in vitro PAN model system. Cell morphology and the microfilament structure of untreated sense and antisense transfectants were altered compared with controls. Vector cell survival, polymerized actin content, cell area, and hsp27 content increased after 1.25 mug/ml PAN treatment and decreased after 5.0 mug/ml treatment. In contrast, sense cells were unaffected by 1.25 mug/ml PAN treatment whereas antisense cells showed decreases or no changes in all parameters. Treatment of sense cells with 5.0 mug/ml PAN resulted in increased cell survival and cell area whereas antisense cells underwent significant decreases in all parameters. Hsp27 provided dramatic protection against PAN-induced microfilament disruption in sense > vector > antisense cells. We conclude that hsp27 is able to regulate both the morphological and actin cytoskeletal response of podocytes in an in vitro model of podocyte injury.-Smoyer, W. E., Ransom, R. F. Hsp27 regulates podocyte cytoskeletal changes in an in vitro model of podocyte process retraction.

REGISTRY NUMBERS: 132579-20-5: actin; 58-60-6: puromycin aminonucleoside
DESCRIPTORS:
MAJOR CONCEPTS: Methods and Techniques; Molecular Genetics--Biochemistry and Molecular Biophysics; Urinary System--Chemical Coordination and Homeostasis
BIOSYSTEMATIC NAMES: Muridae--Rodentia, Mammalia, Vertebrata, Chordata, Animalia
ORGANISMS: MPC-5 cell line (Muridae)--mouse podocyte clonal cells; NIH 3T3 cell line (Muridae)--ATCC, ATCC CRL-1658
ORGANISMS: PARTS ETC: podocyte--excretory system, cytoskeletal changes; stress fibers
COMMON TAXONOMIC TERMS: Animals; Chordates; Mammals; Nonhuman Vertebrates ; Nonhuman Mammals; Rodents; Vertebrates
DISEASES: nephrotic syndrome--urologic disease
MESH TERMS: Nephrotic Syndrome (MeSH)
CHEMICALS & BIOCHEMICALS: Hsp27 {heat shock protein 27}--glomerular accumulation, phosphorylation; actin; puromycin aminonucleoside
METHODS & EQUIPMENT: Superfect--Qiagen, laboratory kit; transfection--expression/vector techniques, molecular genetic method
CONCEPT CODES:
02506 Cytology - Animal
03502 Genetics - General
03506 Genetics - Animal
10064 Biochemistry studies - Proteins, peptides and amino acids
15504 Urinary system - Physiology and biochemistry
15506 Urinary system - Pathology
BIOSYSTEMATIC CODES:

86375 Muridae

14/9/6 (Item 6 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0013407768 BIOSIS NO.: 200200001279
Antisense Hsp27 oligonucleotides sensitize low pH adapted mammalian cells to hyperthermia
AUTHOR: Hargis Michael T (Reprint); Wickstrom Eric (Reprint); Yakubov Leonid A (Reprint); Leeper Dennis B (Reprint); Coss Ronald A (Reprint)
AUTHOR ADDRESS: Thomas Jefferson University, Philadelphia, PA, USA**USA
JOURNAL: Proceedings of the American Association for Cancer Research Annual Meeting 42 p728-729 March, 2001 2001
MEDIUM: print
CONFERENCE/MEETING: 92nd Annual Meeting of the American Association for Cancer Research New Orleans, LA, USA March 24-28, 2001; 20010324
ISSN: 0197-016X
DOCUMENT TYPE: Meeting; Meeting Abstract
RECORD TYPE: Citation
LANGUAGE: English
DESCRIPTORS:
MAJOR CONCEPTS: Cell Biology; Pharmacology; Radiation Biology; Tumor Biology
BIOSYSTEMATIC NAMES: Cricetidae--Rodentia, Mammalia, Vertebrata, Chordata, Animalia
ORGANISMS: CHO cell line (Cricetidae)--Chinese hamster ovary cells
COMMON TAXONOMIC TERMS: Animals; Chordates; Mammals; Nonhuman Vertebrates; Nonhuman Mammals; Rodents; Vertebrates
CHEMICALS & BIOCHEMICALS: Hsp27 {heat shock protein 27}; antisense Hsp27 oligonucleotides--hyperthermia cellular sensitization
METHODS & EQUIPMENT: Western blot--detection method
MISCELLANEOUS TERMS: heat-induced reorganization; microtubular cytoskeleton; pH; selective tumor cell killing; Meeting Abstract; Meeting Abstract
CONCEPT CODES:
00520 General biology - Symposia, transactions and proceedings
02502 Cytology - General
02506 Cytology - Animal
06502 Radiation biology - General
10064 Biochemistry studies - Proteins, peptides and amino acids
12512 Pathology - Therapy
22002 Pharmacology - General
24004 Neoplasms - Pathology, clinical aspects and systemic effects
BIOSYSTEMATIC CODES:
86310 Cricetidae

14/9/7 (Item 7 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0013315498 BIOSIS NO.: 200100487337
Hsp27: A sensory neuron survival factor: Use of herpes simplex virus based vectors for gene delivery in vitro and in vivo
AUTHOR: Benn S C (Reprint); Decosterd I; Bakowska J; Breakefield X; Woolf C J (Reprint)
AUTHOR ADDRESS: Dept Anesthesia, NPRG, Mass General Hospital and Harvard Medical School, Charlestown, MA, USA**USA

JOURNAL: Society for Neuroscience Abstracts 27 (1): p144 2001 2001
MEDIUM: print
CONFERENCE/MEETING: 31st Annual Meeting of the Society for Neuroscience
San Diego, California, USA November 10-15, 2001; 20011110
ISSN: 0190-5295
DOCUMENT TYPE: Meeting; Meeting Abstract
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Hsp27 is a small heat shock protein implicated in protecting non-neuronal cells from cell death by inhibiting caspase-dependent apoptosis. Hsp27 is upregulated in injured sensory and motor neurons after nerve injury in adult rats, and acts as a neuronal survival factor protecting neonatal sensory and sympathetic neurons from cell death in vitro. To determine if endogenous Hsp27 upregulation enhances the survival of adult primary sensory neurons after peripheral nerve injury we have used a Herpes Simplex Virus type 1 (HSV) based amplicon vector to deliver the human Hsp27 antisense gene to DRG sensory neurons in vitro, and in vivo after sciatic nerve injury. Immunostaining and quantitative analysis of cell survival numbers after gene delivery of the human Hsp27 antisense amplicon viral vector versus control vectors (GFP and LacZ) has been used to examine the neuroprotective effects of Hsp27 after injury and give an indication of its biological mechanism of action. In vitro, the HSV viral vector is non-toxic to sensory neurons and has a high efficiency rate of infection, with sufficient expression to detect human Hsp27 protein with the sense Hsp27 vector and knockdown of endogenous Hsp27 with the antisense Hsp27 vector, leading to apoptosis and caspase activation. The ability of Hsp27 to protect neurons from cell death may provide a new treatment for neurodegenerative diseases. HSV amplicon viral vectors offer a safe and effective tool for testing the function of Hsp27 and other genes in neuronal cells in vivo.

DESCRIPTORS:
MAJOR CONCEPTS: Nervous System--Neural Coordination; Vector Biology
BIOSYSTEMATIC NAMES: Herpesviridae--dsDNA Viruses, Viruses, Microorganisms; Muridae--Rodentia, Mammalia, Vertebrata, Chordata, Animalia
ORGANISMS: herpes simplex virus {HSV} (Herpesviridae)--gene vector; rat (Muridae)--adult, animal model
ORGANISMS: PARTS ETC: sensory neuron--nervous system
COMMON TAXONOMIC TERMS: Double-Stranded DNA Viruses; Microorganisms; Viruses; Animals; Chordates; Mammals; Nonhuman Vertebrates; Nonhuman Mammals; Rodents; Vertebrates
DISEASES: peripheral nerve injury--injury, nervous system disease
CHEMICALS & BIOCHEMICALS: Hsp27--heat shock protein, neuronal survival factor, neuroprotective effects, upregulation; sensory neuron survival factor
GENE NAME: human Hsp27 gene (Hominidae)--antisense
METHODS & EQUIPMENT: gene delivery--gene transfer delivery method, genetic method, in vitro, in vivo
MISCELLANEOUS TERMS: apoptosis; Meeting Abstract; Meeting Abstract
CONCEPT CODES:
00520 General biology - Symposia, transactions and proceedings
02506 Cytology - Animal
02508 Cytology - Human
20504 Nervous system - Physiology and biochemistry
33506 Virology - Animal host viruses
37057 Public health: disease vectors - General
BIOSYSTEMATIC CODES:
03115 Herpesviridae

86375 Muridae

14/9/8 (Item 8 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0013309239 BIOSIS NO.: 200100481078
Proteome alterations in human hepatoma cells transfected with antisense epidermal growth factor receptor sequence
AUTHOR: Yu Li-Rong; Shao Xiao-Xia; Jiang Wan-Li; Xu Dan; Chang Yun-Chao; Xu Yong-Hua; Xia Qi-Chang (Reprint)
AUTHOR ADDRESS: Institute of Biochemistry and Cell Biology, Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences, 320 Yue-yang Road, Shanghai, 200031, China**China
JOURNAL: Electrophoresis 22 (14): p3001-3008 August, 2001 2001
MEDIUM: print
ISSN: 0173-0835
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: The epidermal growth factor (EGF) is a member of the growth factor superfamily that can stimulate the proliferation of many types of cells. Overexpression of EGF receptor (EGFR) was observed in many types of cancer cells. Anti-EGFR antibodies or antisense nucleic acid sequence of EGFR can suppress the growth of hepatoma cells. In order to further investigate the proteome alterations associated with malignant growth of the human hepatoma cells and the influence of EGFR signal pathway on the cellular proteome, we have comparatively analyzed the proteomes of human hepatoma cells transfected with antisense EGFR sequence (cell strain JX-1) and its control cells (cell strain JX-0) by two-dimensional (2-D) gel electrophoresis and mass spectrometry. Image analysis of silver-stained 2-D gels revealed that 40 protein spots showed significant expression changes in JX-1 cells compared to JX-0 cells. Three of them, including the tumor suppressor protein maspin, changed with tendency to the normal levels. Two protein spots were identified as HSP27 in the same gel, and one of them had a reduced level in JX-1 cells. The apparent alterations of HSP27 in expression level might be the results from their differential chemical modifications, suggesting the effect of dynamic post-translational modifications of proteins on the growth of hepatoma cells. Other proteins such as glutathione peroxidase (GPX-1) and 14-3-3-sigma also exhibited altered expression in JX-1 cells, and their functional implications are discussed.

DESCRIPTORS:
MAJOR CONCEPTS: Digestive System--Ingestion and Assimilation; Methods and Techniques; Molecular Genetics--Biochemistry and Molecular Biophysics; Tumor Biology
BIOSYSTEMATIC NAMES: Hominidae--Primates, Mammalia, Vertebrata, Chordata, Animalia
ORGANISMS: JX-0 cell line (Hominidae)--Chinese Academy of Sciences, human hepatoma cells, transfected; JX-1 cell line (Hominidae)--Chinese Academy of Sciences, human hepatoma cells, transfected
COMMON TAXONOMIC TERMS: Animals; Chordates; Humans; Mammals; Primates; Vertebrates
DISEASES: hepatoma--digestive system disease, neoplastic disease
MESH TERMS: Carcinoma, Hepatocellular (MeSH); Liver Neoplasms (MeSH)
CHEMICALS & BIOCHEMICALS: epidermal growth factor receptor {EGF receptor}--analysis, expression, sequencing, signaling pathway;

proteins--identification, isolation, quantitative analysis, separation
METHODS & EQUIPMENT: Coomassie blue staining--Histological/Cytological and Culture Techniques, staining method; IPGphor isoelectric focusing system--Amersham Pharmacia Biotech, equipment; in-gel digestion--Extraction, Isolation, Purification and Separation Techniques, isolation method; liquid chromatography ion-trap mass spectrometry {LC-IT-MS}--Spectrum Analysis Techniques, analytical method; two-dimensional gel electrophoresis--polyacrylamide gel electrophoresis, separation method
MISCELLANEOUS TERMS: proteomics
CONCEPT CODES:
02508 Cytology - Human
03502 Genetics - General
03508 Genetics - Human
10064 Biochemistry studies - Proteins, peptides and amino acids
14004 Digestive system - Physiology and biochemistry
17002 Endocrine - General
24004 Neoplasms - Pathology, clinical aspects and systemic effects
BIOSYSTEMATIC CODES:
86215 Hominidae

14/9/9 (Item 9 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0013210816 BIOSIS NO.: 200100382655
Heat shock protein 27 was up-regulated in cisplatin resistant human ovarian tumor cell line and associated with the cisplatin resistance
AUTHOR: Yamamoto Kazue; Okamoto Aikou; Isonishi Seiji; Ochiai Kazunori; Ohtake Yasuyuki (Reprint)
AUTHOR ADDRESS: Food and Pharmaceutical Research and Development Laboratories, Asahi Breweries, Ltd., 1-1-21 Midori Moriya-machi Kitasoma-gun, Ibaraki, 302-0106, Japan**Japan
JOURNAL: Cancer Letters 168 (2): p173-181 July 26, 2001 2001
MEDIUM: print
ISSN: 0304-3835
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: To understand the molecular basis for failure of cisplatin (CDDP) based chemotherapy, we compared gene expressions between CDDP sensitive and resistant ovarian tumor cell line, 2008 and 2008/C13*5.25, by mRNA differential display. We detected both up-regulated and down-regulated bands in the resistant cell and found some of them to be positive on Northern blotting. DNA sequencing revealed one to be mitochondrial heat shock protein 75. We found that HSP27 and HSP70 were also up-regulated in the resistant cell by Western blotting. Further, transient transfection with the HSP27 sense gene made the sensitive cell more resistant, while transient transfection with the antisense gene made it more sensitive.

REGISTRY NUMBERS: 15663-27-1: cisplatin
DESCRIPTORS:
MAJOR CONCEPTS: Pharmacology; Tumor Biology
BIOSYSTEMATIC NAMES: Hominidae--Primates, Mammalia, Vertebrata, Chordata, Animalia
ORGANISMS: 2008 cell line (Hominidae)--human ovarian tumor cells
COMMON TAXONOMIC TERMS: Animals; Chordates; Humans; Mammals; Primates;

Vertebrates
CHEMICALS & BIOCHEMICALS: cisplatin--antineoplastic-drug; heat shock protein 27--upregulation; heat shock protein 70; heat shock protein 75
MISCELLANEOUS TERMS: cisplatin resistance
CONCEPT CODES:
02508 Cytology - Human
10060 Biochemistry studies - General
10064 Biochemistry studies - Proteins, peptides and amino acids
12512 Pathology - Therapy
22002 Pharmacology - General
22005 Pharmacology - Clinical pharmacology
24004 Neoplasms - Pathology, clinical aspects and systemic effects
24008 Neoplasms - Therapeutic agents and therapy
BIOSYSTEMATIC CODES:
86215 Hominidae

14/9/10 (Item 10 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0013171222 BIOSIS NO.: 200100343061
Heat shock protein-56 is induced by cardiotrophin-1 and mediates its hypertrophic effect
AUTHOR: Railson Julia E; Lawrence Kevin; Buddle Joanna C; Pennica Diane; Latchman David S (Reprint)
AUTHOR ADDRESS: Medical Molecular Biology Unit, Institute of Child Health, University College London, 30 Guilford Street, London, WC1N 1EH, UK**UK
JOURNAL: Journal of Molecular and Cellular Cardiology 33 (6): p1209-1221 June, 2001 2001
MEDIUM: print
ISSN: 0022-2828
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Cardiotrophin-1 (CT-1) is an interleukin-6 family cytokine with known protective and hypertrophic effects in the heart. Previous studies have shown that CT-1 treatment increases heat shock protein 70 (hsp70) and heat shock protein 90 (hsp90) levels in cardiac cells. Due to the known protective effects of hsp90 and hsp70, induction of these proteins may be involved in the protective effects of CT-1. We show here that heat shock protein 56 (hsp56), also known as FK506 binding protein 59 (FKBP59), is induced by CT-1 treatment at both the mRNA and protein levels. It has been demonstrated previously that, unlike hsp70 and hsp90, hsp56 overexpression does not protect cardiac myocytes against stressful stimuli. The other known effect of CT-1 is hypertrophy, an increase in cell size without cell division, which occurs in many cardiac pathologies. We investigated the role of hsp56 in the hypertrophic response of primary neonatal rat cardiac myocytes, using overexpression with transiently transfected plasmid vectors and Herpes viral vectors. Overexpression of hsp56 caused a significant increase in cardiac cell size and protein:DNA ratio. Hsp27, hsp70 and hsp90 overexpression had no effect on cell size. An antisense construct to hsp56 reduced hsp56 levels when transiently transfected and blocked the hypertrophic effect of CT-1. This is the first time that a hypertrophic effect has been demonstrated for a heat shock protein and demonstrates that CT-1-induced hypertrophy involves a specific hsp, which is not involved in its protective effect.

REGISTRY NUMBERS: 104987-11-3: FK506; 180132-69-8: cardiotrophin-1

DESCRIPTORS:
MAJOR CONCEPTS: Biochemistry and Molecular Biophysics; Cardiovascular System--Transport and Circulation
BIOSYSTEMATIC NAMES: Muridae--Rodentia, Mammalia, Vertebrata, Chordata, Animalia
ORGANISMS: rat (Muridae)
ORGANISMS: PARTS ETC: heart--circulatory system
COMMON TAXONOMIC TERMS: Animals; Chordates; Mammals; Nonhuman Vertebrates ; Nonhuman Mammals; Rodents; Vertebrates
DISEASES: cardiac hypertrophy--heart disease
MESH TERMS: Cardiomegaly (MeSH)
CHEMICALS & BIOCHEMICALS: FK506; FK506-binding protein 59; cardiotrophin-1; heat shock protein-56
CONCEPT CODES:
10060 Biochemistry studies - General
14504 Cardiovascular system - Physiology and biochemistry
14506 Cardiovascular system - Heart pathology
BIOSYSTEMATIC CODES:
86375 Muridae

14/9/11 (Item 11 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0013163585 BIOSIS NO.: 200100335424
Hsp27 protects mitochondria of thermotolerant cells against apoptotic stimuli
AUTHOR: Samali Afshin (Reprint); Robertson John D; Peterson Elisabeth; Manero Florence; van Zeijl Leone; Paul Catherine; Cotgreave Ian A; Arrigo Andre-Patrick; Orrenius Sten
AUTHOR ADDRESS: Institute of Environmental Medicine, Karolinska Institutet, S-171 77, Stockholm, Sweden**Sweden
JOURNAL: Cell Stress and Chaperones 6 (1): p49-58 January, 2001 2001
MEDIUM: print
ISSN: 1355-8145
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Enhanced cell survival and resistance to apoptosis during thermotolerance correlates with an increased expression of heat shock proteins (Hsps). Here we present additional evidence in support of the hypothesis that the induction of Hsp27 and Hsp72 during acquired thermotolerance in Jurkat T-lymphocytes prevents apoptosis. In thermotolerant cells, Hsp27 was shown to associate with the mitochondrial fraction, and inhibition of Hsp27 induction during thermotolerance in cells transfected with hsp27 antisense potentiated mitochondrial cytochrome c release after exposure to various apoptotic stimuli, despite the presence of elevated levels of Hsp72. Caspase activation and apoptosis were inhibited under these conditions. In vitro studies revealed that recombinant Hsp72 more efficiently blocked cytochrome c-mediated caspase activation than did recombinant Hsp27. A model is presented for the inhibition of apoptosis during thermotolerance in which Hsp27 preferentially blocks mitochondrial cytochrome c release, whereas Hsp72 interferes with apoptosomal caspase activation.

REGISTRY NUMBERS: 186322-81-6: caspase; 9007-43-6: cytochrome c
DESCRIPTORS:
MAJOR CONCEPTS: Biochemistry and Molecular Biophysics; Cell Biology

BIOSYSTEMATIC NAMES: Hominidae--Primates, Mammalia, Vertebrata, Chordata, Animalia
ORGANISMS: Jurkat cell line (Hominidae)--human T lymphocytes
ORGANISMS: PARTS ETC: mitochondria--protection
COMMON TAXONOMIC TERMS: Animals; Chordates; Humans; Mammals; Primates; Vertebrates
CHEMICALS & BIOCHEMICALS: Hsp27 {heat shock protein 27}--antiapoptotic effects; Hsp72 {heat shock protein 72}--antiapoptotic effects; caspase --activation; cytochrome c--mitochondrial release
MISCELLANEOUS TERMS: apoptosis--inhibition; cell survival; cell thermotolerance
CONCEPT CODES:
10060 Biochemistry studies - General
02502 Cytology - General
02508 Cytology - Human
10802 Enzymes - General and comparative studies: coenzymes
BIOSYSTEMATIC CODES:
86215 Hominidae

14/9/12 (Item 12 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0012520911 BIOSIS NO.: 200000239224
Effect of the serine protease inhibitor N-tosyl-L-phenylalanine-chloromethyl ketone (TPCK) on MCF-7 mammary tumour cells growth and differentiation
AUTHOR: Horman Sandrine (Reprint); Del Bino Giacinta; Fokan Dominique; Mosselmans Roger; Galand Paul
AUTHOR ADDRESS: Laboratory of Cytology and Experimental Cancerology, Faculty of Medicine, Free University of Brussels (ULB), 808 Route de Lennik, B-1070, Brussels, Belgium**Belgium
JOURNAL: Cell Biology International 24 (3): p153-161 2000 2000
MEDIUM: print
ISSN: 1065-6995
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Previous studies from this and other laboratories indicated that the oestrogen-regulated heat shock protein HSP27 is involved in the control of MCF-7 cells growth and differentiation, as it also appears to be in other cell types, including osteoblasts and HL-60 cells. In the latter instance, induction of differentiation is associated with the downregulation of myeloblastin, a serine protease now identified as proteinase 3 (hence its designation as PR3/Mbn), mirrored by an increase in the cellular content of the small heat shock protein HSP27, a substrate to this enzyme. Besides, antisense inhibition of PR3/Mbn production sufficed for inducing HL-60 cells monocytic differentiation. This prompted us to examine the hypothesis that a post-translational control on HSP27 levels (and by this on differentiation) by a serine protease might also be operating in human mammary tumour cells. As part of our attempt to evaluate this hypothesis, the present work consisted of testing the effects of a treatment of MCF-7 cells with the serine protease inhibitor N-tosyl-L-phenylalanine-chloromethyl ketone (TPCK). Our data show that this resulted in a four-fold increase in HSP27 content, associated with a 2.5-fold decrease in growth rate, the formation of cytoplasmic vesicles and increased secretion of 52 kDa peptides, identified by Western immunoblot as the isoforms of the

oestrogen-regulated protein, cathepsin D. TPCK only affected growth in MDAMB-231 cells (in which HSP27 levels are very low and remained below MCF-7 cells basal levels after treatment) and failed to affect L929 cells, in which the hsp27 gene is silent. This provides circumstantial support for the assumption that effects of TPCK on the MCF-7 cells phenotype are linked to the associated increase in HSP27 content. Our recent demonstration that MCF-7 cells do in fact express PR3/Mbn fits with our concept and opens the way to test it directly, using antisense strategy.

DESCRIPTORS:
MAJOR CONCEPTS: Enzymology--Biochemistry and Molecular Biophysics; Cell Biology; Tumor Biology
BIOSYSTEMATIC NAMES: Hominidae--Primates, Mammalia, Vertebrata, Chordata, Animalia
ORGANISMS: MCF-7 cell line (Hominidae)--differentiation, growth, human breast cancer cells; MDAMB-231 cell line (Hominidae)--differentiation, growth, human breast cancer cells
COMMON TAXONOMIC TERMS: Animals; Chordates; Humans; Mammals; Primates; Vertebrates
CHEMICALS & BIOCHEMICALS: HSP27 {heat shock protein 27}; N-tosyl-L-phenylalanine chloromethyl ketone {TPCK}--enzyme inhibitor, serine protease inhibitor
METHODS & EQUIPMENT: Western blot analysis--detection method; electron microscopy: microscopy method, microscopy: CB, microscopy--CT
CONCEPT CODES:
24002 Neoplasms - General
01052 Microscopy - General and special techniques
02508 Cytology - Human
10060 Biochemistry studies - General
25502 Development and Embryology - General and descriptive
10502 Biophysics - General
10802 Enzymes - General and comparative studies: coenzymes
16501 Reproductive system - General and methods
BIOSYSTEMATIC CODES:
86215 Hominidae

14/9/13 (Item 13 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0011612072 BIOSIS NO.: 199800406319
The small heat shock protein hsp27 increases invasiveness but decreases motility of breast cancer cells
AUTHOR: Lemieux Pierre; Oesterreich Steffi; Lawrence Julia A; Steeg Patricia S; Hilsenbeck Susan G; Harvey Jennet M; Fuqua Suzanne A W (Reprint)
AUTHOR ADDRESS: Dep. Med., Div. Med. Oncol., Univ. Tex. Health Sci. Cent., San Antonio, San Antonio, TX 78284-7884, USA**USA
JOURNAL: Invasion and Metastasis 17 (3): p113-123 July, 1997 (1998) 1997
MEDIUM: print
ISSN: 0251-1789
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: The small heat shock protein hsp27 is often expressed at high levels in clinical breast tumors; however, its biological role in this disease still remains unclear. Several laboratories have recently shown

that hsp27 expression is associated with aggressive tumor behavior. We hypothesized that hsp27 may influence the metastatic tumor process since this is part of tumor 'aggressiveness'. Therefore, we stably transfected breast cancer cell lines with sense (MDA-MB-231) and antisense (MDA-MB-435) hsp27 constructs, respectively, and examined various cellular aspects associated with the metastatic process. We found that hsp27-overexpressing clones lost their protrusive morphology, but exhibited higher membrane ruffling as compared to low expressing cells. hsp27 overexpression also resulted in decreased cell motility, but invasiveness, adhesion, and growth in Matrigel were all significantly increased. Conversely, antisense suppression of hsp27 expression resulted in increased cell motility, but decreased in vitro invasiveness. The direct correlation of hsp27 levels with metastasis was confirmed by an in vivo assay measuring the number of lung metastases in mice injected with hsp27-transfected cells. Thus, we conclude that hsp27 overexpression may influence the invasive and metastatic potential of human breast cancer cells.

DESCRIPTORS:
MAJOR CONCEPTS: Tumor Biology
BIOSYSTEMATIC NAMES: Hominidae--Primates, Mammalia, Vertebrata, Chordata, Animalia
ORGANISMS: MDA-MB-231 (Hominidae)--human breast cancer cell line; MDA-MB-235 (Hominidae)--human breast cancer cell line
COMMON TAXONOMIC TERMS: Animals; Chordates; Humans; Mammals; Primates; Vertebrates
CHEMICALS & BIOCHEMICALS: small heat shock protein 27--breast tumor cell invasiveness increasing activity, tumor cell motility decreasing activity
CONCEPT CODES:
24006 Neoplasms - Biochemistry
12008 Physiology - Stress
12100 Movement
13012 Metabolism - Proteins, peptides and amino acids
16506 Reproductive system - Pathology
24005 Neoplasms - Neoplastic cell lines
10618 External effects - Temperature as a primary variable - hot
24007 Neoplasms - Carcinogens and carcinogenesis
32500 Tissue culture, apparatus, methods and media
BIOSYSTEMATIC CODES:
86215 Hominidae

14/9/14 (Item 14 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0011276918 BIOSIS NO.: 199800071165
hsp27 as a switch between differentiation and apoptosis in murine embryonic stem cells
AUTHOR: Mehlen Patrick; Mehlen Anne; Godet Jacqueline; Arrigo Andre-Patrick (Reprint)
AUTHOR ADDRESS: Lab. Stress Cell., CNRS UMR 5534, Cent. Genet. Mol. Cell., Univ. Claude Bernard Lyon-I, 43 Bd du 11 Novembre, 69622 Villeurbanne Cedex, France**France
JOURNAL: Journal of Biological Chemistry 272 (50): p31657-31665 Dec. 12, 1997 1997
MEDIUM: print
ISSN: 0021-9258
DOCUMENT TYPE: Article

RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Small stress proteins are developmentally regulated and linked to cell growth and differentiation. The early phase of murine embryonic stem (ES) cell differentiation, characterized by a gradual growth arrest, is accompanied with hsp27 transient accumulation. This differentiation process also correlated with changes in hsp27 phosphorylation and oligomerization. The role of hsp27 was investigated in ES clones stably transfected with murine or human hsp27 genes, placed in sense or antisense orientation. Several clones were obtained that either underexpressed endogenous murine hsp27 or overexpressed murine or human hsp27. Maintained undifferentiated, these clones showed similar growth rates. We report here that hsp27 constitutive overexpression enhanced the differentiation-mediated decreased rate of ES cell proliferation but did not alter morphological changes. In contrast, hsp27 underexpression, which attenuated cell growth arrest, induced differentiation abortion because of an overall cell death by apoptosis. Recently, we showed that hsp27 interfered with cell death probably because of its ability to modulate intracellular glutathione. hsp27 accumulation during ES cell differentiation was also correlated with an increase in glutathione, which was attenuated by hsp27 down-expression. Hence, hsp27 transient expression seems essential for preventing differentiating ES cells from undergoing apoptosis, a switch that may be redox regulated.

REGISTRY NUMBERS: 70-18-8: glutathione
DESCRIPTORS:
MAJOR CONCEPTS: Biochemistry and Molecular Biophysics; Development
BIOSYSTEMATIC NAMES: Hominidae--Primates, Mammalia, Vertebrata, Chordata, Animalia; Muridae--Rodentia, Mammalia, Vertebrata, Chordata, Animalia
ORGANISMS: human (Hominidae); murine (Muridae)
ORGANISMS: PARTS ETC: embryonic stem cells--embryonic structure
COMMON TAXONOMIC TERMS: Humans; Primates; Animals; Chordates; Mammals; Nonhuman Vertebrates; Nonhuman Mammals; Rodents; Vertebrates
CHEMICALS & BIOCHEMICALS: glutathione; hsp27--expression
MISCELLANEOUS TERMS: apoptosis; cell differentiation; cell growth arrest; cell proliferation
CONCEPT CODES:
10060 Biochemistry studies - General
25502 Development and Embryology - General and descriptive
BIOSYSTEMATIC CODES:
86215 Hominidae
86375 Muridae

14/9/15 (Item 15 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0011249633 BIOSIS NO.: 199800043880
Small heat shock proteins and protection against ischemic injury in cardiac myocytes
AUTHOR: Martin Jody L; Mestril Ruben; Hilal-Dandan Randa; Brunton Laurence L; Dillmann Wolfgang H (Reprint)
AUTHOR ADDRESS: Dep. Med., Univ. California San Diego, 9500 Gilman Dr., La Jolla, CA 92093-0618, USA**USA
JOURNAL: Circulation 96 (12): p4343-4348 Dec. 16, 1997 1997
MEDIUM: print
ISSN: 0009-7322
DOCUMENT TYPE: Article

RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Background. Overexpression of the inducible hsp70 protects against ischemic cardiac damage. However, it is unclear whether the small heat shock proteins hsp27 and alphaB-crystallin protect against ischemic injury. Methods and Results. Our aim was to examine whether the overexpression of hsp27 and alphaB-crystallin in neonatal and adult rat cardiomyocytes would protect against ischemic injury. Recombinant adenovirus expressing hsp27 or alphaB-crystallin under the control of the cytomegalovirus promoter was used to infect cardiac myocytes at high efficiency as assessed by immunostaining. Overexpression was confirmed by Western blot analysis. Cardiomyocytes were subjected to simulated ischemic stress, and survival was estimated through assessment of lactate dehydrogenase and creatine phosphokinase release. The hsp27 overexpression decreased lactate dehydrogenase release by 45 +- 7.5% in adult cardiomyocytes but had no effect in the neonatal cells. In contrast, alphaB-crystallin overexpression was associated with a decrease in cytosolic enzyme release in both adult (29 +- 6.6%) and neonatal (32 +- 5.4%) cardiomyocytes. Decreased endogenous hsp25 with an antisense adenovirus produced a 29 +- 9.9% increase in damage with simulated ischemia. Overexpression of the inducible hsp70 in adult cardiomyocytes was associated with a 34 +- 4.6% decrease in lactate dehydrogenase release and is in line with our previous results in neonatal cardiomyocytes. Conclusions. The increased expression of hsp27 and alphaB-crystallin through an adenovirus vector system protects against ischemic injury in adult cardiomyocytes. Likewise, the overexpression of alphaB-crystallin protects against ischemic damage in neonatal cardiomyocytes. Decreasing the high levels of endogenous hsp25 present in neonatal cardiomyocytes renders them more susceptible to damage caused by simulated ischemia.
DESCRIPTORS:
MAJOR CONCEPTS: Cardiovascular System--Transport and Circulation
BIOSYSTEMATIC NAMES: Muridae--Rodentia, Mammalia, Vertebrata, Chordata, Animalia
ORGANISMS: rat (Muridae)--adult, neonate
ORGANISMS: PARTS ETC: cardiac myocytes--circulatory system, muscular system
COMMON TAXONOMIC TERMS: Animals; Chordates; Mammals; Nonhuman Vertebrates ; Nonhuman Mammals; Rodents; Vertebrates
DISEASES: ischemic injury--vascular disease
MESH TERMS: Ischemia (MeSH)
CHEMICALS & BIOCHEMICALS: alpha-B-crystallin--overexpression; inducible hsp70--overexpression; small heat shock proteins
CONCEPT CODES:
14506 Cardiovascular system - Heart pathology
02506 Cytology - Animal
10300 Replication, transcription, translation
14508 Cardiovascular system - Blood vessel pathology
17506 Muscle - Pathology
BIOSYSTEMATIC CODES:
86375 Muridae

14/9/16 (Item 16 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0011182443 BIOSIS NO.: 199799816503
Effects of antisense HSP27 gene expression in osteosarcoma cells

AUTHOR: Rondeaux Philippe (Reprint); Galand Paul (Reprint); Horman Sandrine ; Mairesse Nicole
AUTHOR ADDRESS: Lab. Cytologie Cancerologie Experimentale, Fac. Med., ULB, CP 628, 808 route de Lennik, B-1070 Brussels, Belgium**Belgium
JOURNAL: In Vitro Cellular and Developmental Biology Animal 33 (9): p 655-658 1997 1997
ISSN: 1071-2690
DOCUMENT TYPE: Article; Letter
RECORD TYPE: Citation
LANGUAGE: English
DESCRIPTORS:
MAJOR CONCEPTS: Cell Biology; Genetics; Oncology--Human Medicine, Medical Sciences; Skeletal System--Movement and Support
BIOSYSTEMATIC NAMES: Hominidae--Primates, Mammalia, Vertebrata, Chordata, Animalia
ORGANISMS: MG-63 (Hominidae)--cell line
COMMON TAXONOMIC TERMS: Animals; Chordates; Humans; Mammals; Primates; Vertebrates
MISCELLANEOUS TERMS: ANTISENSE HSP27 GENE EXPRESSION; ASSESSMENT METHOD ; BONE DISEASE; EXTRACELLULAR SIGNALS; GENETICS; LASER DENSITOMETRY; NEOPLASTIC DISEASE; OSTEOBLAST DIFFERENTIATION; OSTEOBLAST EXPRESSION; OSTEOSARCOMA; PHOSPHORYLATION; TUMOR BIOLOGY; WESTERN IMMUNOBLOT
CONCEPT CODES:
02508 Cytology - Human
03508 Genetics - Human
18001 Bones, joints, fasciae, connective and adipose tissue - General and methods
24002 Neoplasms - General
BIOSYSTEMATIC CODES:
86215 Hominidae

14/9/17 (Item 17 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0010733594 BIOSIS NO.: 199799367654
Increase of P-glycoprotein-mediated drug resistance by hsp 90-beta
AUTHOR: Bertram Joachim (Reprint); Palfner Karsten; Hiddemann Wolfgang; Kneba Michael
AUTHOR ADDRESS: Abteilung Haematologie/Onkologie, Zentrum fuer Innere Medizin, Universitaetsklin. Goettingen, Robert Koch Strasse 40, 37075 Goettingen, Germany**Germany
JOURNAL: Anti-Cancer Drugs 7 (8): p838-845 1996 1996
ISSN: 0959-4973
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: The expression of heat shock proteins hsp27, hsp60, hsp70, hsp90-alpha and hsp90-beta in extracts of three cell lines (LoVo Dx-R, KBCh-R8-5 and S180 Dx-R) expressing the MDR (multidrug resistance) positive phenotype as well as in the sensitive parental lines has been investigated. We present evidence that heat shock protein hsp90-beta is associated with the P-glycoprotein (Pgp or P170) one of the most prominent components of the drug resistance machinery. In the doxorubicin-resistant cell line LoVo Dx-R, but not in the sensitive parental line, hsp90-beta is expressed constitutively as shown by Northern blotting. The expression of hsp90-beta in the sensitive LoVo cell line, however, can be induced by exposure of the

doxorubicin-sensitive parental cell line to different stress factors (dexamethasone, doxorubicin, heat treatment or cadmium chloride). We were able to demonstrate that hsp90-beta can be co-precipitated along with Pgp and vice versa. In native agarose gels both proteins migrated together as one single band as shown by Western blot analysis. This intracellular protein-protein interaction may present a mechanism for the modulation of Pgp function possibly by a stabilization of the protein which seems to be attributed to hsp90-beta (in the human colon carcinoma cell line and in the murine cell line S180). Antisense experiments with oligonucleotides directed against hsp90-beta and Pgp, respectively, showed a synergistic effect of the selected hsp90-beta antisense oligonucleotide in combination with the previously described Pgp antisense oligonucleotide in reducing the doxorubicin resistance. The hsp90-beta antisense oligonucleotide when applied in addition to the Pgp antisense oligonucleotide increased the doxorubicin sensitivity of the resistant human colon carcinoma cell line 2-fold. On the contrary, the hsp90-beta antisense oligonucleotide alone in contrast to the Pgp antisense oligonucleotide alone did not cause a reduction of the chemoresistance. Moreover, Pgp half-life was reduced in the presence of both antisense oligonucleotides as compared with an incubation with an anti-Pgp antisense oligonucleotide alone.

REGISTRY NUMBERS: 23214-92-8: DOXORUBICIN
DESCRIPTORS:
MAJOR CONCEPTS: Biochemistry and Molecular Biophysics; Cell Biology; Oncology--Human Medicine, Medical Sciences
BIOSYSTEMATIC NAMES: Animalia--Animalia; Hominidae--Primates, Mammalia, Vertebrata, Chordata, Animalia; Muridae--Rodentia, Mammalia, Vertebrata, Chordata, Animalia
ORGANISMS: Animalia (Animalia); Hominidae (Hominidae); Muridae (Muridae)
COMMON TAXONOMIC TERMS: Humans; Primates; Animals; Chordates; Mammals; Nonhuman Vertebrates; Nonhuman Mammals; Rodents; Vertebrates
CHEMICALS & BIOCHEMICALS: DOXORUBICIN
MISCELLANEOUS TERMS: ANTINEOPLASTIC; DOXORUBICIN; HEAT SHOCK PROTEIN 90-BETA; HEAT SHOCK PROTEIN 90-BETA ANTISENSE OLIGONUCLEOTIDE; KBCH-R-8-5 CELL LINE; LOVO DX-R CELL LINE; P-GLYCOPROTEIN ANTISENSE OLIGONUCLEOTIDE; P-GLYCOPROTEIN-MEDIATED DRUG RESISTANCE; PHARMACOLOGY; PROTEIN-PROTEIN INTERACTION; S180 DX-R CELL LINE
CONCEPT CODES:
02506 Cytology - Animal
02508 Cytology - Human
10064 Biochemistry studies - Proteins, peptides and amino acids
24008 Neoplasms - Therapeutic agents and therapy
BIOSYSTEMATIC CODES:
33000 Animalia
86215 Hominidae
86375 Muridae

14/9/18 (Item 18 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0010708646 BIOSIS NO.: 199799342706
Expression of the 25-kDa heat-shock protein (HSP27) correlates with resistance to the toxicity of cadmium chloride, mercuric chloride, cis-Platinum(II)-diammine dichloride, or sodium arsenite in mouse embryonic stem cells transfected with sense or antisense HSP27 cDNA
AUTHOR: Wu William; Welsh Michael J (Reprint)
AUTHOR ADDRESS: Dep. Anatomy, Cell Biol., Univ. Michigan Med. Sch., Ann

Arbor, MI 48109, USA**USA
JOURNAL: Toxicology and Applied Pharmacology 141 (1): p330-339 1996 1996
ISSN: 0041-008X
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Embryonic stem (ES) cells were transfected with the protein-coding region of rat HSP27 cDNA placed in sense or antisense orientation in vector pcDNA3 under the control of the constitutive cytomegalovirus (CMV) promoter. Compared with nontransfected ES cells, five sense HSP27 cDNA-transfected ES cell clones displayed up to fourfold increases in expression of HSP27 mRNA and up to sixfold increases in expression of HSP27 protein, whereas four antisense HSP27 cDNA-transfected ES cell lines exhibited synthesis of antisense HSP27 RNA and a 50-85% decrease in HSP27 protein expression. Compared to the parental ES cell lines or ES cells transfected with the vector lacking any HSP27 sequence, all ES cell lines overexpressing HSP27 were resistant to killing by cadmium chloride (CdCl-2), mercuric chloride (HgCl-2), cis-platinum(II)-diammine dichloride (cDDP), sodium arsenite (NaAsO-2), and heat while ES cell lines expressing reduced HSP27 were more sensitive to metal toxicity and heat. The relative toxicities of the tested metals to ES cells were cDDP gt NaAsO-2 gt HgCl-2 gt CdCl-2. Protection of ES cells against metal or heat toxicity was positively correlated with the level of HSP27. These data confirm in ES cells previous reports of the ability of HSP27 to protect other cell types against heat and demonstrate that HSP27 protects mammalian cells against the toxic effects of diverse metals.

REGISTRY NUMBERS: 10108-64-2: CADMIUM CHLORIDE; 7487-94-7: MERCURIC CHLORIDE; 7784-46-5Q: SODIUM ARSENITE; 13464-37-4Q: SODIUM ARSENITE
DESCRIPTORS:
MAJOR CONCEPTS: Cell Biology; Development; Genetics; Metabolism; Toxicology
BIOSYSTEMATIC NAMES: Muridae--Rodentia, Mammalia, Vertebrata, Chordata, Animalia
ORGANISMS: Muridae (Muridae)
COMMON TAXONOMIC TERMS: Animals; Chordates; Mammals; Nonhuman Vertebrates ; Nonhuman Mammals; Rodents; Vertebrates
CHEMICALS & BIOCHEMICALS: CADMIUM CHLORIDE; MERCURIC CHLORIDE; SODIUM ARSENITE
MISCELLANEOUS TERMS: ANTISENSE HSP27 COMPLEMENTARY DNA-TRANSFECTED; CADMIUM CHLORIDE; CIS-PLATINUM(II)-DIAMMINE DICHLORIDE; D3 CELL LINE; EMBRYONIC STEM CELL; EXPRESSION; HEAT TOXICITY; HEAT-SHOCK PROTEIN 27; MERCURIC CHLORIDE; MESSENGER RNA; MOLECULAR GENETICS; MOUSE EMBRYONIC STEM CELL; MRNA; SENSE HSP27 COMPLEMENTARY DNA-TRANSFECTED; SODIUM ARSENITE; TOXICOLOGY; TOXIN
CONCEPT CODES:
02506 Cytology - Animal
03506 Genetics - Animal
13012 Metabolism - Proteins, peptides and amino acids
22501 Toxicology - General and methods
25504 Development and Embryology - Experimental
BIOSYSTEMATIC CODES:
86375 Muridae

14/9/19 (Item 19 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0010685836 BIOSIS NO.: 199799319896

Molecular characterization of a novel, developmentally regulated small embryonic chaperone from Caenorhabditis elegans

AUTHOR: Linder Barbara; Jin Zhijun; Freedman Jonathan H; Rubin Charles S (Reprint)
AUTHOR ADDRESS: Dep. Molecular Pharmacol., Albert Einstein Coll. Med., Bronx, NY 10461, USA**USA

JOURNAL: Journal of Biological Chemistry 271 (47): p30158-30166 1996 1996
ISSN: 0021-9258
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Low molecular weight chaperones inhibit protein aggregation and facilitate refolding of partially denatured polypeptides in cells subjected to physical and chemical stresses. The nematode Caenorhabditis elegans provides a system amenable for investigations on roles for chaperone proteins in normal homeostasis and development. We characterized a C. elegans gene and cDNAs that encode a novel, small embryonic chaperone-like protein (SEC-1) that is composed of 159 amino acids. The central core of SEC-1 (residues 45-126) is apprx 40% identical with a corresponding segment of mammalian Hsp27 and alpha-B crystallin. Expression of SEC-1 in Escherichia coli confers thermotolerance on the bacterium. SEC-1 mRNA is evident only in C. elegans oocytes and developing embryos. Translation and accumulation of SEC-1 protein is temporally coupled with a prolonged burst of intense protein synthesis and rapid mitogenesis during early embryogenesis. As the rate of protein synthesis decreases during late embryogenesis, levels of SEC-1 and its cognate mRNA decline precipitously. Induction/ deinduction of SEC-1 is precisely regulated by intrinsic developmental factors rather than extrinsic stresses. In vivo injection of C. elegans oocytes with antisense oligonucleotides that complement the 5'-end of SEC-1 mRNA arrests nematode development at an early stage after fertilization. Thus, SEC-1 appears to be adapted to perform essential functions in early embryogenesis.

DESCRIPTORS:
MAJOR CONCEPTS: Biochemistry and Molecular Biophysics; Development; Genetics; Molecular Genetics--Biochemistry and Molecular Biophysics; Physiology; Reproductive System--Reproduction
BIOSYSTEMATIC NAMES: Enterobacteriaceae--Facultatively Anaerobic Gram-Negative Rods, Eubacteria, Bacteria, Microorganisms; Nematoda--Aschelminthes, Helminthes, Invertebrata, Animalia
ORGANISMS: Escherichia coli (Enterobacteriaceae); Caenorhabditis elegans (Nematoda)
COMMON TAXONOMIC TERMS: Bacteria; Eubacteria; Microorganisms; Animals; Aschelminths; Helminths; Invertebrates
MISCELLANEOUS TERMS: ACCUMULATION; ALPHA-B-CRYSTALLIN; DEVELOPMENT; EMBRYOGENESIS; FERTILIZATION; HEAT SHOCK PROTEIN-27; MOLECULAR GENETICS ; MOLECULAR STRUCTURE; SMALL EMBRYONIC CHAPERONE-LIKE PROTEIN GENE; TRANSLATION
CONCEPT CODES:
03506 Genetics - Animal
10064 Biochemistry studies - Proteins, peptides and amino acids
10300 Replication, transcription, translation
10506 Biophysics - Molecular properties and macromolecules
16504 Reproductive system - Physiology and biochemistry
25502 Development and Embryology - General and descriptive
25508 Development and Embryology - Morphogenesis

31500 Genetics of bacteria and viruses
64016 Invertebrata: comparative, experimental morphology, physiology and pathology - Aschelminthes
BIOSYSTEMATIC CODES:
06702 Enterobacteriaceae
51300 Nematoda

14/9/20 (Item 20 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0010450020 BIOSIS NO.: 199699084080
Antisense inhibition of the 27 kDa heat shock protein production affects growth rate and cytoskeletal organization in MCF-7 cells
AUTHOR: Mairesse N; Horman S; Mosselmans R; Galand P (Reprint)
AUTHOR ADDRESS: Biol. Unit, Inst. Interdisciplinary Res., Free Univ. Brussels, Campus Erasme, Building C, 808 route de Lennik, B-1070 Brussels, Belgium**Belgium
JOURNAL: Cell Biology International 20 (3): p205-212 1996 1996
ISSN: 1065-6995
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: MCF-7 cells were co-transfected with the human HSP27 antisense cDNA and the neomycin resistance gene, included in the constitutive expression vector pSVL, and the phenotypical changes associated with decreased expression of the HSP27 protein were analysed. Three out of 10 neomycin-resistant clones obtained proliferated normally and showed a normal HSP27 content (Western blot). The seven other clones (designated as alpha-HSP27 clones) were characterized by a dramatic growth inhibition associated with alterations in cellular morphology. Cells became progressively hypertrophied, exhibited lamellar protrusions and tended to lose contact with each other. They also acquired characteristics of secretory cells, namely the presence of numerous refractile granules and secretory canaliculi. Among the alpha-HSP27 clones, two were immunocytochemically analysed for HSP27 content. Both clones were immunonegative for HSP27, contrary to parental cells and neo-transfectants. Actin immunostaining in one of these HSP27 negative clones revealed that microfilament organization changed from diffuse to punctate distribution. Our data support the current concept of a role for HSP27 in cell growth and differentiation and further suggests that this might occur through a control on actin polymerization-depolymerization.

DESCRIPTORS:
MAJOR CONCEPTS: Biochemistry and Molecular Biophysics; Cell Biology; Development; Metabolism
BIOSYSTEMATIC NAMES: Hominidae--Primates, Mammalia, Vertebrata, Chordata, Animalia
ORGANISMS: Hominidae (Hominidae)
COMMON TAXONOMIC TERMS: Animals; Chordates; Humans; Mammals; Primates; Vertebrates
CHEMICALS & BIOCHEMICALS: ACTIN
MISCELLANEOUS TERMS: ACTIN; CELL BIOLOGY; CELL DIFFERENTIATION; CELL GROWTH RATE; CHEMICAL COORDINATION AND HOMEOSTASIS; CYTOSKELETAL ORGANIZATION; DEVELOPMENT; HEAT SHOCK PROTEIN 27; HEAT SHOCK PROTEIN-27 ANTISENSE CDNA; HEAT SHOCK PROTEIN-27 ANTISENSE COMPLEMENTARY DNA; MCF-7; PROTEIN PRODUCTION
CONCEPT CODES:

02508 Cytology - Human
10060 Biochemistry studies - General
13002 Metabolism - General metabolism and metabolic pathways
25502 Development and Embryology - General and descriptive
BIOSYSTEMATIC CODES:
86215 Hominidae

14/9/21 (Item 21 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0010351050 BIOSIS NO.: 199698818883
Inconstant association between 27-kDa heat-shock protein (Hsp27) content and doxorubicin resistance in human colon cancer cells: The doxorubicin-protecting effect of Hsp27
AUTHOR: Garrido Carmen (Reprint); Mehlen Patrick; Fromentin Annie; Hammann Arlette; Assem Mahfoud; Arrigo Andre-Patrick; Chauffert Bruno
AUTHOR ADDRESS: INSERM CJF 94-08, Fac. Med., 7 Bd Jeanne d'Arc, F-21033 Dijon Cedex, France**France
JOURNAL: European Journal of Biochemistry 237 (3): p653-659 1996 1996
ISSN: 0014-2956
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: To investigate the role of the small 27-kDa heat-shock protein (Hsp27) in the intrinsic resistance of colon cancer cells to doxorubicin, we modified Hsp27 expression either genetically by transfection or pharmacologically by cisplatin treatment. HT-29 cells were transfected with a full-length Hsp27 construct in the sense or antisense orientation. We found a good correlation between cell survival after doxorubicin treatment and Hsp27 content. A similar correlation was found for the thermoresistance of the Hsp27-transfected cells. In contrast, the sensitivity of the different transfected cells to 5-fluorouracil was not modified. cis-Platinum(II)diammine dichloride (cisplatin) treatment of HT-29 or Caco2 cells dramatically increased their Hsp27 mRNA and protein content. Accordingly, the cells became thermoresistant. Contrary to what has been previously assumed, however, cell resistance to doxorubicin was reduced. Our data suggest that the decreased resistance of the cells to doxorubicin may be due to a concomitant increase of topoisomerase II expression, the main target of anthracyclines. In conclusion, although Hsp27 seems to participate in the natural resistance of colon cancer cells to anthracyclines, its increase after cisplatin treatment is not associated with a decreased cytotoxicity to doxorubicin.

REGISTRY NUMBERS: 23214-92-8: DOXORUBICIN; 142805-56-9: TOPOISOMERASE II
DESCRIPTORS:
MAJOR CONCEPTS: Biochemistry and Molecular Biophysics; Biosynchronization ; Cell Biology; Gastroenterology--Human Medicine, Medical Sciences; Genetics; Oncology--Human Medicine, Medical Sciences; Pharmacology
BIOSYSTEMATIC NAMES: Hominidae--Primates, Mammalia, Vertebrata, Chordata, Animalia
ORGANISMS: Hominidae (Hominidae)
COMMON TAXONOMIC TERMS: Animals; Chordates; Humans; Mammals; Primates; Vertebrates
CHEMICALS & BIOCHEMICALS: DOXORUBICIN; TOPOISOMERASE II
MISCELLANEOUS TERMS: ANTHRACYCLINE; ANTINEOPLASTIC-DRUG; CELL CYCLE; DOXORUBICIN; MULTIDRUG RESISTANCE; TOPOISOMERASE II
CONCEPT CODES:

02508 Cytology - Human
03508 Genetics - Human
07200 Circadian rhythms and other periodic cycles
10060 Biochemistry studies - General
10064 Biochemistry studies - Proteins, peptides and amino acids
10506 Biophysics - Molecular properties and macromolecules
10618 External effects - Temperature as a primary variable - hot
14006 Digestive system - Pathology
22002 Pharmacology - General
24008 Neoplasms - Therapeutic agents and therapy
BIOSYSTEMATIC CODES:
86215 Hominidae

14/9/22 (Item 22 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0010284460 BIOSIS NO.: 199698752293
HSP27 and HSP70 increase the survival of WEHI-S cells exposed to hyperthermia
AUTHOR: Wissing D (Reprint); Jaattela M
AUTHOR ADDRESS: Dep. Tumour Cell Biol., Div. Cancer Biol., Danish Cancer Society, Strandboulevarden 49, 7.1, DK-2100 Copenhagen, Denmark**Denmark
JOURNAL: International Journal of Hyperthermia 12 (1): p125-138 1996 1996
ISSN: 0265-6736
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Exposure of cells to hyperthermia and various other stress conditions induces synthesis of a small group of proteins, the heat shock proteins (HSPs). Synthesis of HSPs correlates with the development of thermotolerance, but little is known about the role of individual HSPs in this phenomenon. Using stably transfected WEHI-S murine fibrosarcoma cells we show that overexpression of either HSP27 or HSP70 clearly protects these cells from the toxic effect of elevated temperatures. Moreover, a clone expressing HSP70 mRNA in antisense orientation, and thereby reduced levels of endogenous HSP70 protein, is more thermosensitive than transfection control cells. Using indirect immunofluorescence we show that following heat treatment exogenous HSP27 and HSP70 are relocated from the cytoplasm to the nucleus and nucleoli respectively. A similar pattern of localization was seen for the endogenous HSPs. Taken together, these results indicate that both HSP27 and HSP70 protect cells from heat mediated killing.

DESCRIPTORS:
MAJOR CONCEPTS: Biochemistry and Molecular Biophysics; Cell Biology; Physiology; Tumor Biology
BIOSYSTEMATIC NAMES: Muridae--Rodentia, Mammalia, Vertebrata, Chordata, Animalia
ORGANISMS: Muridae (Muridae)
COMMON TAXONOMIC TERMS: Animals; Chordates; Mammals; Nonhuman Vertebrates ; Nonhuman Mammals; Rodents; Vertebrates
MISCELLANEOUS TERMS: HEAT SHOCK PROTEINS; MURINE FIBROSARCOMA CELLS; THERMOTOLERANCE
CONCEPT CODES:
02506 Cytology - Animal
10064 Biochemistry studies - Proteins, peptides and amino acids
10618 External effects - Temperature as a primary variable - hot

13012 Metabolism - Proteins, peptides and amino acids
23010 Temperature - Thermoadaptation
24005 Neoplasms - Neoplastic cell lines
32600 In vitro cellular and subcellular studies
BIOSYSTEMATIC CODES:
86375 Muridae

14/9/23 (Item 23 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0009335285 BIOSIS NO.: 199497356570
Sense and antisense modification of glial alpha-B-crystallin production results in alterations of stress fiber formation and thermoresistance
AUTHOR: Iwaki Toru (Reprint); Iwaki Akiko; Tateishi Jun; Golman James E
AUTHOR ADDRESS: Dep. Neuropathol., Neurol. Inst., Fac. Med., Kyushu Univ. 60, Maidashi 3-1-1, Higashi-ku, Fukuoka 812, Japan**Japan
JOURNAL: Journal of Cell Biology 125 (6): p1385-1393 1994 1994
ISSN: 0021-9525
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: The phenotypic effects of selectively altering the levels of alpha-B-crystallin in cultured glial cells were analyzed using sense and antisense approaches. Rat C6 glioma cells and human U-373MG glioma cells were transfected with a rat alpha-B-crystallin sense cDNA or an antisense cDNA regulated by a Rous sarcoma virus promoter to alter cellular levels of alpha-B-crystallin. The antisense strategy resulted in decreased alpha-B-crystallin levels, as revealed by Western blot and immunocytochemical analyses. The reduced alpha-B-crystallin expression was accompanied by alterations in cellular phenotype: (a) a reduction of cell size and/or a slender cell morphology; (b) a disorganized microfilament network, and (c) a reduction of cell adhesiveness. Like HSP27, the presence of additional alpha-B-crystallin protein confers a thermoresistant phenotype to stable transfectants. Thus, alpha-B-crystallin in glioma cells plays a role in their thermal resistance and may contribute to the stability of cytoskeletal organization.

DESCRIPTORS:
MAJOR CONCEPTS: Biochemistry and Molecular Biophysics; Cell Biology; Genetics; Molecular Genetics--Biochemistry and Molecular Biophysics; Morphology; Physiology
BIOSYSTEMATIC NAMES: Hominidae--Primates, Mammalia, Vertebrata, Chordata, Animalia; Muridae--Rodentia, Mammalia, Vertebrata, Chordata, Animalia
ORGANISMS: Hominidae (Hominidae); Muridae (Muridae)
COMMON TAXONOMIC TERMS: Humans; Primates; Animals; Chordates; Mammals; Nonhuman Vertebrates; Nonhuman Mammals; Rodents; Vertebrates
MISCELLANEOUS TERMS: HUMAN U-373MG CELLS; RAT C6 GLIOMA CELLS
CONCEPT CODES:
02506 Cytology - Animal
02508 Cytology - Human
03506 Genetics - Animal
10064 Biochemistry studies - Proteins, peptides and amino acids
10300 Replication, transcription, translation
10618 External effects - Temperature as a primary variable - hot
11108 Anatomy and Histology - Microscopic and ultramicroscopic anatomy
23012 Temperature - Thermoregulation

BIOSYSTEMATIC CODES:
86215 Hominidae
86375 Muridae

14/9/24 (Item 24 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0008983339 BIOSIS NO.: 199497004624
Overexpression of major heat shock protein hsp70 inhibits tumor necrosis factor-induced activation of phospholipase A-2
AUTHOR: Jaattela Marja
AUTHOR ADDRESS: Dep. Tum. Cell Biol., Danish Cancer Society Res. Cent., Div. Cancer Biol., DK-2100 Copenhagen, Denmark**Denmark
JOURNAL: Journal of Immunology 151 (8): p4286-4294 1993 1993
ISSN: 0022-1767
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: We have recently shown that major heat shock protein (hsp70) protects WEHI-S tumor cells from the cytotoxicity mediated by TNF. In the present study, the mechanism of hsp70-associated TNF resistance was investigated. Overexpression of human hsp70 or inhibition of endogenous hsp70 synthesis by expression of antisense hsp70 RNA did not change the ability of WEHI-S tumor cells to bind TNF or internalize and degrade the receptor-bound TNF. Moreover, TNF-induced activation of NF-kappa-B-like transcription factors was unaffected by altered levels of hsp70 as tested by electrophoretic mobility shift assay. Thus, it is unlikely that the resistance is due to changes in TNF receptors or in their ability to transduce signals leading to the regulation of genes, whose expression is regulated by NF-kappa-B-like transcription factors. The idea that hsp70-associated TNF resistance is independent of regulation of TNF-induced gene expression was further supported by the results showing that hsp70 protected WEHI-S cells from TNF-mediated killing also in the presence of inhibitors of either translation or transcription. Interestingly, TNF-induced activation of arachidonic acid metabolism correlated directly with their sensitivity to TNF and inversely with the amount of hsp70 in the cells. Furthermore, TNF-induced activation of arachidonic acid metabolism was inhibited in WEHI-S cells and two TNF-sensitive human cell lines by induction of the synthesis of endogenous heat shock proteins by heat shock. Even stronger inhibition of arachidonic acid metabolism was seen in WEHI cells rendered TNF-resistant by culturing them in the presence of increasing concentrations of TNF. These cells also had reduced numbers of type 1 TNF receptors. Overexpression of a low molecular weight heat shock protein hsp27 in WEHI-S cells had no effect on any of the parameters studied. These results show that both hsp70-mediated and TNF-induced TNF resistance are associated with a reduced activation of phospholipase A2 suggesting that phospholipase A-2 plays an essential role in TNF-mediated cytotoxicity and that hsp70 interferes with the signal transduction pathway leading to its activation.

REGISTRY NUMBERS: 9001-84-7: PHOSPHOLIPASE A2; 506-32-1: ARACHIDONIC ACID
DESCRIPTORS:
MAJOR CONCEPTS: Biochemistry and Molecular Biophysics; Clinical Endocrinology--Human Medicine, Medical Sciences; Endocrine System--Chemical Coordination and Homeostasis; Enzymology--Biochemistry and Molecular Biophysics; Genetics; Metabolism; Molecular Genetics--

Biochemistry and Molecular Biophysics; Oncology--Human Medicine, Medical Sciences
BIOSYSTEMATIC NAMES: Hominidae--Primates, Mammalia, Vertebrata, Chordata, Animalia; Muridae--Rodentia, Mammalia, Vertebrata, Chordata, Animalia
ORGANISMS: human (Hominidae); murine (Muridae)
COMMON TAXONOMIC TERMS: Humans; Primates; Animals; Chordates; Mammals; Nonhuman Vertebrates; Nonhuman Mammals; Rodents; Vertebrates
CHEMICALS & BIOCHEMICALS: PHOSPHOLIPASE A2; ARACHIDONIC ACID
MISCELLANEOUS TERMS: ARACHIDONIC ACID METABOLISM; CYTOTOXICITY; GENE REGULATION; NUCLEAR FACTOR NF-KAPPA-B-LIKE TRANSCRIPTION FACTOR; RECEPTOR; SIGNAL TRANSDUCTION PATHWAY INTERFERENCE; TRANSLATION; WEHI-S TUMOR CELLS
CONCEPT CODES:
02506 Cytology - Animal
02508 Cytology - Human
03506 Genetics - Animal
03508 Genetics - Human
10064 Biochemistry studies - Proteins, peptides and amino acids
10066 Biochemistry studies - Lipids
10300 Replication, transcription, translation
10508 Biophysics - Membrane phenomena
10808 Enzymes - Physiological studies
13006 Metabolism - Lipids
13012 Metabolism - Proteins, peptides and amino acids
17002 Endocrine - General
24003 Neoplasms - Immunology
34508 Immunology - Immunopathology, tissue immunology
BIOSYSTEMATIC CODES:
86215 Hominidae
86375 Muridae

14/9/25 (Item 25 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0008974518 BIOSIS NO.: 199396138934
The small heat shock protein hsp27 is correlated with growth and drug resistance in human breast cancer cell lines
AUTHOR: Oesterreich Steffi; Weng Chye-Ning; Qiu Ming; Hilsenbeck Susan G; Osborne C Kent; Fuqua Suzanne A W (Reprint)
AUTHOR ADDRESS: Dep. Med. Oncology, Univ. Texas Health Science Cent. San Antonio, 7703 Floyd Curl Drive, San Antonio, TX 78284-7884, USA**USA
JOURNAL: Cancer Research 53 (19): p4443-4448 1993
ISSN: 0008-5472
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: An emerging body of evidence suggests that the heat shock proteins (hsp) may be involved in drug resistance. When hsp are induced by elevated temperatures, resistance to doxorubicin (Dox), but not to other commonly used chemotherapeutic agents, is induced in breast cancer cells. To evaluate the role of hsp27 in this phenomenon, we have transfected MDA-MB-231 breast cancer cells, which normally express low levels of hsp27, with a full-length hsp27 construct. These hsp27-overexpressing cells now display a 3-fold elevated resistance to Dox. Anchorage-dependent proliferation and anchorage-independent growth were also increased 2-4-fold in these transfectants. We have also derived a MCF-7 breast cancer cell line with amplified endogenous hsp27 which is

highly resistant to Dox. When these cells are transfected with an antisense hsp27 construct, they are rendered sensitive to Dox (3-fold) with anchorage-dependent as well as anchorage-independent growth, similarly decreased. These results suggest that hsp27 specifically confers Dox resistance in human breast cancer cells and, furthermore, that hsp27 may be involved in the regulation of cell growth.

REGISTRY NUMBERS: 23214-92-8: DOXORUBICIN
DESCRIPTORS:
MAJOR CONCEPTS: Biochemistry and Molecular Biophysics; Cell Biology; Oncology--Human Medicine, Medical Sciences; Pharmacology
BIOSYSTEMATIC NAMES: Hominidae--Primates, Mammalia, Vertebrata, Chordata, Animalia
ORGANISMS: Hominidae (Hominidae)
COMMON TAXONOMIC TERMS: Animals; Chordates; Humans; Mammals; Primates; Vertebrates
CHEMICALS & BIOCHEMICALS: DOXORUBICIN
MISCELLANEOUS TERMS: ANTINEOPLASTIC-DRUG
CONCEPT CODES:
02508 Cytology - Human
10060 Biochemistry studies - General
10064 Biochemistry studies - Proteins, peptides and amino acids
22005 Pharmacology - Clinical pharmacology
24005 Neoplasms - Neoplastic cell lines
24007 Neoplasms - Carcinogens and carcinogenesis
24008 Neoplasms - Therapeutic agents and therapy
32500 Tissue culture, apparatus, methods and media
BIOSYSTEMATIC CODES:
86215 Hominidae

14/9/26 (Item 26 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0008431726 BIOSIS NO.: 199294133567
MAJOR HEAT SHOCK PROTEIN HSP70 PROTECTS TUMOR CELLS FROM TUMOR NECROSIS FACTOR CYTOTOXICITY
AUTHOR: JAATTELA M (Reprint); WISSING D; BAUER P A; LI G C
AUTHOR ADDRESS: DEP OF TUMOR CELL BIOL, FIBIGER INST, DANISH CANCER SOCIETY, DK-2100 COPENHAGEN, DENMARK**DENMARK
JOURNAL: EMBO (European Molecular Biology Organization) Journal 11 (10): p 3507-3512 1992
ISSN: 0261-4189
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: Heat treatment and various other stresses render tumor cells resistant to cytotoxicity mediated by tumor necrosis factors (TNFs). Here, we elucidate the molecular basis of this phenomenon by demonstrating that the major heat shock protein, hsp70, protects tumor cells from TNF cytotoxicity even in the absence of stress. The human hsp70 gene was stably introduced into highly TNF-sensitive WEHI-S tumor cells both in the sense and antisense orientation. All clones constitutively expressing the exogenous human hsp70 gene were protected from TNF-mediated killing .apprx.1000-fold. Remarkably, the growth of one clone was actually stimulated by low concentrations of TNF. Moreover, a clone expressing antisense hsp70 RNA was rendered extremely sensitive to TNFs. Hsp70-mediated protection from TNF cytotoxicity was confirmed in

transient expression experiments employing retroviral vectors. Changes in cellular sensitivity to TNF were not associated with alterations in the binding of TNF to its receptors. Neither the transfection procedure itself nor overexpression of the low molecular weight heat shock protein, hsp27, had any effect on cellular susceptibility to TNFs. Our data suggest that hsp70 may increase the oncogenic potential of some tumor cells by providing them with an escape mechanism from immunological defense.

DESCRIPTORS: HUMAN MURINE WEHI-S CELL LINE SENSE ORIENTATION ANTISENSE ORIENTATION ONCOGENIC POTENTIAL IMMUNOLOGICAL DEFENSE ESCAPE MECHANISM TRANSFECTION
DESCRIPTORS:
MAJOR CONCEPTS: Biochemistry and Molecular Biophysics; Cell Biology; Endocrine System--Chemical Coordination and Homeostasis; Genetics; Immune System--Chemical Coordination and Homeostasis; Metabolism; Oncology--Human Medicine, Medical Sciences; Pharmacology
BIOSYSTEMATIC NAMES: Hominidae--Primates, Mammalia, Vertebrata, Chordata, Animalia; Muridae--Rodentia, Mammalia, Vertebrata, Chordata, Animalia
COMMON TAXONOMIC TERMS: Humans; Primates; Animals; Chordates; Mammals; Nonhuman Vertebrates; Nonhuman Mammals; Rodents; Vertebrates
CONCEPT CODES:
02506 Cytology - Animal
02508 Cytology - Human
03506 Genetics - Animal
03508 Genetics - Human
10062 Biochemistry studies - Nucleic acids, purines and pyrimidines
10064 Biochemistry studies - Proteins, peptides and amino acids
10068 Biochemistry studies - Carbohydrates
10506 Biophysics - Molecular properties and macromolecules
13012 Metabolism - Proteins, peptides and amino acids
17002 Endocrine - General
22003 Pharmacology - Drug metabolism and metabolic stimulators
22005 Pharmacology - Clinical pharmacology
22016 Pharmacology - Endocrine
24003 Neoplasms - Immunology
24006 Neoplasms - Biochemistry
24007 Neoplasms - Carcinogens and carcinogenesis
24008 Neoplasms - Therapeutic agents and therapy
34502 Immunology - General and methods
BIOSYSTEMATIC CODES:
86215 Hominidae
86375 Muridae

14/9/27 (Item 1 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

16014809 PMID: 12223074
Gene targets of antisense therapies in breast cancer.
Yang Ding Cheng; Elliott Robert L; Head Jonathan F
Mastology Research Institute, Head Breast Cancer Research and Treatment Center, Baton Rouge, LA 70816, USA.
Expert opinion on therapeutic targets (England) Jun 2002, 6 (3) p375-85, ISSN 1744-7631 Journal Code: 101127833
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM

Record type: In Process
Subfile: INDEX MEDICUS

Advances in molecular and cell biology have led to further understanding of the mechanisms of malignant growth and metastasis in human breast cancer cells. Initiation and progression of breast cancer results from mutations and the abnormal expression of many genes that control cellular proliferation, differentiation, invasion, metastasis and sensitivity to therapy (chemotherapy and radiation therapy). Inhibition of host immunity also plays a role in breast cancer progression. Many genes have been selected as targets for antisense therapy, including HER-2/neu, PKA, TGF-alpha, EGFR, TGF-beta, IGFIR, P12, MDM2, BRCA, Bcl-2, ER, VEGF, MDR, ferritin, transferrin receptor, IRE, C-fos, HSP27, C-myc, C-raf and metallothionein genes. The strategy behind antisense therapy is the development of specific therapeutic agents that aim to correct the mutations and abnormal expression of cellular genes in breast tumour cells by decreasing gene expression, inducing degradation of target mRNA and causing premature termination of transcription. Many in vitro and in vivo studies have investigated the therapeutic efficacy of oligonucleotides and antisense RNAs. These studies have demonstrated specific inhibition of tumour cell growth by antisense therapy and have shown synergistic inhibitory effects between antisense oligonucleotides or antisense RNA and conventional chemotherapeutic drugs used in the treatment of breast cancer. Antisense oligonucleotides have been modified to improve their ability to penetrate cells, bind to gene sequences and downregulate target gene function. Many delivery systems for antisense RNA and antisense oligonucleotides have been developed, including virus vectors (retrovirus, adenovirus and adeno-associate virus) and liposomes, to carry the antisense RNA or oligonucleotides through the cell membrane into the cytoplasm and nucleus of the tumour cells. However, in order to determine their feasibility antisense therapies need to be further investigated to determine their antitumour activity, pharmacokinetics and toxicity in breast cancer patients.

Record Date Created: 20020911

14/9/28 (Item 2 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

10030313 PMID: 8418204

Heat-shock proteins protect cells from monocyte cytotoxicity: possible mechanism of self-protection.

Jaattela M; Wissing D

Department of Tumor Cell Biology, Fibiger Institute, Danish Cancer Society, Copenhagen.

Journal of experimental medicine (UNITED STATES) Jan 1 1993, 177 (1) p231-6, ISSN 0022-1007 Journal Code: 2985109R

Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS

We have previously shown that major heat-shock protein (hsp 70) protects WEHI-S tumor cells from cytotoxicity mediated by tumor necrosis factor alpha (TNF-alpha) and TNF-beta. In the present study, the effect of altered expression of hsp70 and low molecular weight heat-shock protein, hsp27, on tumor cell sensitivity to monocytes and lymphokine-activated killer (LAK) cells was studied. Constitutive and stable expression of transfected human hsp70 rendered cells almost completely resistant to monocytes. Conversely,

inhibition of endogenous hsp70 by expression of antisense hsp70 RNA enhanced the sensitivity of cells to monocyte-mediated killing. Surprisingly, overexpression of human hsp27, which does not protect WEHI-S cells from TNF killing, conferred partial resistance to monocytes. Only approximately 60% of monocyte-mediated killing of WEHI-S cells could be blocked by neutralizing TNF-alpha antibody or immunoglobulin G-TNF receptor chimeric protein, suggesting the presence of both TNF-dependent and TNF-independent lytic mechanisms. As free radicals have been suggested to be mediators of monocyte cytotoxicity, we tested the sensitivity of transfected cells to oxidative stress. Overexpression of either hsp70 or hsp27 rendered cells partially resistant to hydrogen peroxide. No significant changes in the susceptibility of cell lines overexpressing hsp70 or hsp27 to cytotoxicity mediated by LAK cells were observed. Interestingly, monocytes but not LAK cells contained detectable levels of hsp27 and hsp70 in nonstressed conditions. Taken together, these data indicate that hsp70 protects tumor cells from TNF-mediated monocyte cytotoxicity and that both hsp27 and hsp70 confer resistance to TNF-independent, probably free radical-mediated lysis by monocytes. Moreover, hsp27 and hsp70 may provide monocytes with a protective mechanism against their own toxicity.

Tags: Research Support, Non-U.S. Gov't

Descriptors: *Cytotoxicity, Immunologic--drug effects--DE; *Heat-Shock Proteins--pharmacology--PD; *Monocytes--immunology--IM; Animals; Cell Line; Heat-Shock Proteins--analysis--AN; Humans; Hydrogen Peroxide--pharmacology --PD; Killer Cells, Lymphokine-Activated--chemistry--CH; Killer Cells, Lymphokine-Activated--immunology--IM; Mice; Monocytes--chemistry--CH; Tumor Necrosis Factor-alpha--physiology--PH

CAS Registry No.: 0 (Heat-Shock Proteins); 0 (Tumor Necrosis Factor-alpha); 7722-84-1 (Hydrogen Peroxide)

Record Date Created: 19930201

Record Date Completed: 19930201

14/9/29 (Item 1 from file: 357)

DIALOG(R)File 357:Derwent Biotech Res.

0301809 DBR Accession No.: 2003-03594 PATENT

Profiling mRNA production during stages, by isolating cells having disease stage progression, producing antisense RNA transcripts from mRNA, amplifying and quantitating individual transcripts indicative of mRNA - antisense oligonucleotide transfer and expression in host cell for gene therapy

AUTHOR: COLEMAN P D; CHOW N; COX C

PATENT ASSIGNEE: UNIV ROCHESTER 2002

PATENT NUMBER: US 20020102553 PATENT DATE: 20020801 WPI ACCESSION NO.: 2002-690600 (200274)

PRIORITY APPLIC. NO.: US 770534 APPLIC. DATE: 20010125

NATIONAL APPLIC. NO.: US 770534 APPLIC. DATE: 20010125

LANGUAGE: English

ABSTRACT: DERWENT ABSTRACT: NOVELTY - Profiling (M1) mRNA production during stages comprising isolating number of cells each characterized by a stage of disease progression, producing antisense RNA transcripts from mRNA of each of the cells, amplifying the antisense RNA transcripts and quantitating the levels of individual antisense RNA transcripts which is indicative of the levels of an mRNA for each of the cells, is new. DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for: (1) monitoring (M2) gene expression in a single cell comprises isolating a cell from tissue, producing antisense RNA transcripts, amplifying the antisense RNA transcripts and measuring mRNA levels of the antisense

RNA transcripts; and (2) diagnosing and monitoring (M3) progression of a disease comprises classifying cells as diseased or healthy, isolating a single cell which is classified as diseased from a subject, producing antisense RNA transcripts from mRNA of the isolated cell, amplifying the antisense RNA transcripts and measuring mRNA levels for quantification of the RNA transcripts. BIOTECHNOLOGY - Preferred Method: In M1, the isolation of cells involves the enzymatic treatment, laser separation of cells or floating the cells out of the cells. The cells are neurofibrillary tangle cells. The RNA transcripts are encoded by a gene selected from synaptic markers, lysosomal hydrolases, kinases and phosphatases, neurotrophic factors, cell cycle regulators, apoptosis factors, mitochondrial genes and other proteins associated with Alzheimer's disease. Quantitating the antisense RNA transcripts is carried out by dot-blot hybridization of cDNA with the antisense RNA, by sequencing based serial analysis of gene expression or by cDNA microarray analysis. M1 further involves measuring mRNA levels for control genes by quantitating the levels of antisense RNA transcripts for the control genes, and comparing the mRNA levels for the transcripts to the mRNA levels for the control genes transcripts using multivariate analysis. M2 further involves producing antisense RNA transcripts from mRNA of a second cell, amplifying the antisense RNA transcripts from the second cell, measuring mRNA levels for individual genes within the second cell by quantitating the levels of the antisense RNA transcripts and comparing the mRNA level for a gene expressed in cell to the mRNA level for the gene expressed in the second cell. The first and second cells are at different stages of development, where the first cell is diseased and the second cell is healthy. The first cell is exposed to an experimental compound and the second cell is exposed to a different or no compound, where the compound is an experimental drug or environmental toxin. The first cell is exposed to an environmental stimulus (is a form of radiation) and the second cell is not exposed to the environmental stimulus. In M3, the cells classified as diseased or healthy is carried out by sorting cells on the basis of morphology, size or immunological markers. USE - M1 is useful for profiling mRNA production during stages, where the disease is Alzheimer's disease and the cells are isolated from brain tissue. The cells are isolated from a post mortem sample of cells or from a sample collected from a living patient, where the sample is blood, cheek scrapings, cerebral spinal fluid, saliva, urine, or skin (claimed). EXAMPLE - Large pyramidal neurons were isolated from tissue smears. To obtain enough material from single cells for gene expression analysis, messenger ribonucleic acid (mRNA) from single cells were amplified. Single cells were treated with DNaseI followed by reverse transcription. The second-strand complementary deoxyribonucleic acid (cDNA) was synthesized by a replacement reaction. The double-stranded cDNA was then used as a template for in vitro transcription with T7 RNA polymerase. Because the RNA made in this way was antisense, the procedure was called single-cell antisense RNA (aRNA) amplification. After initial amplification, aRNA served as a template for second-round cDNA synthesis, followed by second aRNA synthesis in the presence of (alpha-32)CTP (NEN). The radiolabeled aRNA was hydrolyzed and used as a probe for reverse dot-blot hybridization analysis. 1 mug of each linearized cDNA was denatured and dot-blotted on a nylon membrane. For each 32P-labeled aRNA from a cell, duplicated dot blots were used for each hybridization reaction. Hybridization was performed and the membranes were exposed to a storage phosphor screen for quantification. Hybridization intensity of each spot was detected by laser densitometric scanning. To normalize for the amount of plasmid DNA on each spot, membranes were stripped by incubating in hybridization solution without dextran sulfate and reprobed with end-labeled

oligonucleotide (i) specific to the T7 promoter region in plasmid vectors such as pBluescript and pT7T3D. The national center for biotechnology information dbEST database was searched for 3' cDNAs of interest and purchased. The cDNA clones used in this were alpha1-antichymotrypsin (alpha1-ACT, T40002), glyceraldehyde-3-phosphat e dehydrogenase (GAPDH, T71597), and heat shock protein 27 (HSP27, T49404). All the cDNA clones used were sequenced to ensure the identity of cDNAs. It was noted that if a cDNA had a region that is highly conserved among members of the gene family, cross-reactivity upon hybridization was expected. TAATACGACTCACTATAGGG (i).(34 pages)
DESCRIPTORS: synaptic marker, lysosomal hydrolase, kinase, phosphatase, neurotrophic factor, cell cycle regulator, apoptosis factor, mitochondrial gene, Alzheimer disease-associated protein-specific antisense oligonucleotide, RNA transfer, expression in host cell, RNA amplification, DNA probe, cDNA microarray, appl. Alzheimer disease gene therapy, mRNA expression profiling enzyme hybridization DNA array DNA sequence (22, 07)
SECTION: THERAPEUTICS-Gene Therapy-GENETIC TECHNIQUES and APPLICATIONS-Gene Expression Techniques and Analysis; DISEASE-Central Nervous System-DIAGNOSTICS-Molecular Diagnostics; BIOINFORMATICS and ANALYSIS-Biochips and Bioarrays

14/9/30 (Item 1 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)

132021476 CA: 132(3)21476u JOURNAL
Anti-sense inhibition of small-heat-shock-protein (HSP27) expression in MCF-7 mammary-carcinoma cells induces their spontaneous acquisition of a secretory phenotype
AUTHOR(S): Horman, Sandrine; Fokan, Dominique; Mosselmans, Roger; Mairesse, Nicole; Galand, Paul
LOCATION: Laboratory of Cytology and Experimental Cancerology, School of Medicine, Free University of Brussels, B-1070, Brussels, Belg.
JOURNAL: Int. J. Cancer DATE: 1999 VOLUME: 82 NUMBER: 4 PAGES: 574-582 CODEN: IJCNAW ISSN: 0020-7136 LANGUAGE: English PUBLISHER: Wiley-Liss, Inc.
SECTION:
CA213006 Mammalian Biochemistry
CA214XXX Mammalian Pathological Biochemistry
IDENTIFIERS: heat shock protein HSP27 mammary carcinoma cell proliferation differentiation
DESCRIPTORS:
Antisense oligonucleotides... Cell differentiation...
anti-sense inhibition of small-heat-shock-protein (HSP27) expression in MCF-7 mammary-carcinoma cells induces spontaneous acquisition of secretory phenotype
Mammary gland...
carcinoma; anti-sense inhibition of small-heat-shock-protein (HSP27) expression in MCF-7 mammary-carcinoma cells induces spontaneous acquisition of secretory phenotype
Heat-shock proteins...
HSP 27; anti-sense inhibition of small-heat-shock-protein (HSP27) expression in MCF-7 mammary-carcinoma cells induces spontaneous acquisition of secretory phenotype
Proliferation inhibition...
HSP27 might play modulatory role in cell differentiation and in proliferation in in in MCF-7 mammary-carcinoma cells
Organelle...

lipid droplet; anti-sense inhibition of HSP27 expression in MCF-7 mammary-carcinoma cells results in growth inhibition, accumulation of lipid droplets in cytoplasm, formation of secretory microvesicle
CAS REGISTRY NUMBERS:
9025-26-7 anti-sense inhibition of HSP27 expression in MCF-7 mammary-carcinoma cells results in growth inhibition, accumulation of lipid droplets in cytoplasm, formation of secretory microvesicles and increased release of cathepsin D

14/9/31 (Item 2 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)

129243595 CA: 129(19)243595j JOURNAL
Expression profiles of multiple genes in single neurons of Alzheimer's disease
AUTHOR(S): Chow, Nienwen; Cox, Chris; Callahan, Linda M.; Weimer, Jill M. ; Guo, LiRong; Coleman, Paul D.
LOCATION: Departments of Neurobiology and Anatomy, University of Rochester, Rochester, NY, 14642, USA
JOURNAL: Proc. Natl. Acad. Sci. U. S. A. DATE: 1998 VOLUME: 95
NUMBER: 16 PAGES: 9620-9625 CODEN: PNASA6 ISSN: 0027-8424 LANGUAGE: English PUBLISHER: National Academy of Sciences
SECTION:
CA214010 Mammalian Pathological Biochemistry
CA203XXX Biochemical Genetics
IDENTIFIERS: Alzheimer single pyramidal neuron gene expression, antisense RNA Alzheimer neuron gene expression
DESCRIPTORS:
Amplification(genetic)...
antisense RNA amplification method; expression profiles of multiple genes in single hippocampal pyramidal neurons of human Alzheimer's disease using antisense RNA profiling and multivariate canonical
Multivariate analysis...
canonical; expression profiles of multiple genes in single hippocampal pyramidal neurons of human Alzheimer's disease using antisense RNA profiling and multivariate canonical anal.
Alzheimer's disease... Antisense RNA... Gene expression... Genes(animal)...
Genetic markers... mRNA... Transcription(genetic)...
expression profiles of multiple genes in single hippocampal pyramidal neurons of human Alzheimer's disease using antisense RNA profiling and multivariate canonical anal.
Cyclin B1... Cyclin D1... Cyclins E... NF-M(neurofilament protein)...
Protein CREB... Protein HSP27... Protein HSP90... .alpha.B-Crystallins...
gene expression; expression profiles of multiple genes in single hippocampal pyramidal neurons of human Alzheimer's disease using antisense RNA profiling and multivariate canonical anal.
Proteins(specific proteins and subclasses)...
gene wee1, gene expression; expression profiles of multiple genes in single hippocampal pyramidal neurons of human Alzheimer's disease using antisense RNA profiling and multivariate canonical anal.
Cyclins...
G1, gene expression; expression profiles of multiple genes in single hippocampal pyramidal neurons of human Alzheimer's disease using antisense RNA profiling and multivariate canonical anal.
Ferritins...
L and H subunits, gene expression; expression profiles of multiple genes in single hippocampal pyramidal neurons of human Alzheimer's disease using antisense RNA profiling and multivariate canonical a

Pyramidal cell...
layer, hippocampal; expression profiles of multiple genes in single hippocampal pyramidal neurons of human Alzheimer's disease using antisense RNA profiling and multivariate canonical anal.
Proteins(specific proteins and subclasses)...
nestins, gene expression; expression profiles of multiple genes in single hippocampal pyramidal neurons of human Alzheimer's disease using antisense RNA profiling and multivariate canonical anal.
Proteins(specific proteins and subclasses)...
presenilins 1, gene expression; expression profiles of multiple genes in single hippocampal pyramidal neurons of human Alzheimer's disease using antisense RNA profiling and multivariate canonical anal
Hippocampus...
pyramidal cell layer; expression profiles of multiple genes in single hippocampal pyramidal neurons of human Alzheimer's disease using antisense RNA profiling and multivariate canonical anal.
Nucleic acid hybridization...
RNA-RNA, in situ; expression profiles of multiple genes in single hippocampal pyramidal neurons of human Alzheimer's disease using antisense RNA profiling and multivariate canonical anal.
Proteins(specific proteins and subclasses)...
TC25, gene expression; expression profiles of multiple genes in single hippocampal pyramidal neurons of human Alzheimer's disease using antisense RNA profiling and multivariate canonical anal.
Proteins(specific proteins and subclasses)...
tuberins, gene expression; expression profiles of multiple genes in single hippocampal pyramidal neurons of human Alzheimer's disease using antisense RNA profiling and multivariate canonical anal.
CAS REGISTRY NUMBERS:
9001-50-7 9024-58-2 141176-92-3 141467-20-1 147014-97-9 gene expression; expression profiles of multiple genes in single hippocampal pyramidal neurons of human Alzheimer's disease using antisense RNA profiling and multivariate canonical anal.

14/9/32 (Item 3 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)

126002734 CA: 130(1)2734u JOURNAL
Lactate stress test in the diagnosis of mitochondrial myopathy
AUTHOR(S): Finsterer, J.; Shorny, S.; Capek, J.; Cerny-Zacharias, C.; Pelzl, B.; Messne, R.; Bittner, R. E.; Mamoli, B.
LOCATION: Ludwig Boltzmann Institute for Research in Neuromuscular Disorders, Vienna, Austria
JOURNAL: J. Neurol. Sci. DATE: 1998 VOLUME: 159 NUMBER: 2 PAGES: 176-180 CODEN: JNSCAG ISSN: 0022-510X PUBLISHER ITEM IDENTIFIER: 0022-510X(98)00170-1 LANGUAGE: English PUBLISHER: Elsevier Science B.V.
SECTION:
CA214010 Mammalian Pathological Biochemistry
CA209XXX Biochemical Methods
IDENTIFIERS: lactate stress test mitochondria myopathy
DESCRIPTORS:
Bicycles...
ergometer; lactate stress test in diagnosis of human mitochondrial myopathy
Diagnosis... Exercise... Oxidative metabolism... Serum(blood)...
lactate stress test in diagnosis of human mitochondrial myopathy
Muscle diseases...
mitochondrial myopathy; lactate stress test in diagnosis of human

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    mitochondrial myopathy
  CAS REGISTRY NUMBERS:
50-21-5  biological studies, stress test; lactate stress test in diagnosis
    of human mitochondrial myopathy
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